SIEMENS

ACUSON S2000™ Ultrasound System

DICOM Conformance Statement

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CONFORMANCE STATEMENT OVERVIEW

The **ACUSON S2000™ Ultrasound System** supports the following DICOM Application Entities:

- Verification:
  - Verification AE
- Transfer:
  - Storage AE
  - Storage Commitment AE
- Query / Retrieve:
  - Query AE
  - Retrieve AE
- Workflow Management:
  - Worklist AE
  - MPPS AE
- Print Management
  - Print AE

Table 1: Network Services

SOP Classes	Service Class User (SCU)	Service Class Provider (SCP)
VERIFICATION		
Verification AE		
Verification	Yes	Yes
TRANSFER		
Storage AE		
Ultrasound Image Storage	Yes	Yes
Ultrasound Multi-frame Image Storage	Yes	Yes
Secondary Capture Image Storage	Yes	Yes
Comprehensive SR	Yes	No
Storage Commitment AE		
Storage Commitment Push Model	Yes	Yes
QUERY / RETRIEVE		
Query AE		
Patient Root Query/Retrieve Information Model - FIND	Yes	Yes
Study Root Query/Retrieve Information Model - FIND	Yes	Yes
Patient/Study Only Query/Retrieve Information Model - FIND	Yes	Yes
Retrieve AE		
Patient Root Query/Retrieve Information Model - MOVE	Yes	Yes
Study Root Query/Retrieve Information Model - MOVE	Yes	Yes
Patient/Study Only Query/Retrieve Information Model - MOVE	Yes	Yes
Patient Root Query/Retrieve Information Model - GET	No	Yes
Study Root Query/Retrieve Information Model - GET	No	Yes
Patient/Study Only Query/Retrieve Information Model - GET	No	Yes
WORKFLOW MANAGEMENT		
Worklist AE		
Modality Worklist Information Model - FIND	Yes	No

SOP Classes	Service Class User (SCU)	Service Class Provider (SCP)
MPPS AE		
Modality Performed Procedure Step	Yes	No
PRINT MANAGEMENT		
Print AE		
Basic Grayscale Print Management Meta SOP Class	Yes	No
Basic Color Print Management Meta SOP Class	Yes	No
Print Job SOP Class	Yes	No

Table 2: UID Values

SOP Class Name	SOP Class UID	Category
Verification AE		
Verification	1.2.840.10008.1.1	Verification
Storage AE		
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Transfer
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Transfer
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Transfer
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	Transfer
Storage Commitment AE		
Storage Commitment Push Model	1.2.840.10008.1.20.1	Transfer
Query AE		
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	Query / Retrieve
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Query / Retrieve
Patient/Study Only Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.3.1	Query / Retrieve
Retrieve AE		
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	Query / Retrieve
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	Query / Retrieve
Patient/Study Only Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.3.2	Query / Retrieve
Patient Root Query/Retrieve Information Model - GET	1.2.840.10008.5.1.4.1.2.1.3	Query / Retrieve
Study Root Query/Retrieve Information Model - GET	1.2.840.10008.5.1.4.1.2.2.3	Query / Retrieve
Patient/Study Only Query/Retrieve Information Model - GET	1.2.840.10008.5.1.4.1.2.3.3	Query / Retrieve
Worklist AE		
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31	Workflow Management
MPPS AE		
Modality Performed Procedure Step	1.2.840.10008. 3.1.2.3.3	Workflow Management
Print AE		
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Print Management
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	Print Management
Print Job SOP Class	1.2.840.10008.5.1.1.14	Print Management

Table 3: Media Services

Media Storage Application Profile	Write Files		Read Files
	FSC	FSU	FSR
Compact Disc - Recordable			
STD-GEN-CDR STD-US-SC-MF-CDR STD-US-ID-MF-CDR	Yes	No**	No**
DVD - Recordable			
STD_GEN-DVD STD-US-SC-MF-DVD STD-US-ID-MF-DVD	Yes	No**	No**

** The ACUSON S2000 system acts as a File Set Reader (FSR) and File Set Updater (FSU) only for CD/DVD discs that were created on an ACUSON S2000 system.

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1.0 Purpose

This document describes the conformance to the ACR-NEMA DICOM 3.0 Standard by the ACUSON S2000 Ultrasound System, version VB10, from Siemens Heathcare. It shall establish the conformance specifications for this system only and does not apply to other products offered by Siemens Healthcare or its affiliates.

The ACUSON S2000 ultrasound system is a device that generates ultrasound images that can be sent using DICOM standard protocols and definitions to other DICOM compliant devices that support the SOP classes defined in Table 7.

1.1 Scope

The DICOM standard provides a well-defined set of structures and protocols that allow inter-operability of a wide variety of medical imaging devices. The ACUSON S2000 ultrasound system provides support for essential services related to ultrasound scanning and connectivity to DICOM compliant devices. ACUSON S2000 systems will not support all features supported by the DICOM standard. This document clearly states the DICOM services and data classes that are supported by the applications included with the ACUSON S2000 ultrasound system. The intent of this document is to allow users and other vendors who also conform to the DICOM standard to exchange information within the specific context of those elements of the DICOM standard that ACUSON S2000 ultrasound system supports.

This document is written with respect to the adopted portions of the DICOM standard, Version 3. The following sections of this document follow the outline specified in the DICOM Standard NEMA publication PS3.3 [1].

2.0 References

Specifications of the DICOM 3.0 standard may be obtained from ACR-NEMA for customers who require detailed information.

Table 4: References

Document Title	Location
[1] Part 2 of the DICOM Standard: NEMA Standards Publication PS 3.2-2008, Digital Imaging and Communications in Medicine (DICOM), Part 2: Conformance	http://dicom.nema.org [1]
[2] Part 4 of the DICOM Standard: NEMA Standards Publication PS 3.4-2008, Digital Imaging and Communications in Medicine (DICOM), Part 4: Service Class Specifications	
[3] Part 16 of the DICOM Standard, NEMA Standards Publication PS 3.16-2008, Digital Imaging and Communication in Medicine (DICOM), Part 16: Content Mapping Resource	

[1] Source: DICOM® Standards Publication, © NEMA. The DICOM Standard is under continuous maintenance. The current official version is available at http://dicom.nema.org.

3.0 Definitions

Table 5: Acronyms and Abbreviations

Acronym or Abbreviation	Definition
ACR-NEMA	American College of Radiology - National Electrical Manufacturer's Association
AE	Application Entity
Conformance Statement	A formal statement associated with a specific implementation of the DICOM Standard. It specifies the Service Classes, Information Objects, Communications Protocols and Media Storage Application Profiles supported by the implementation.
DICOM 3.0	Digital Imaging and Communications in Medicine, Version 3.0.
DIMSE	DICOM Message Service Element
EBE	Explicit Big Endian transfer syntax
ELE	Explicit Little Endian transfer syntax
ILE	Implicit Little Endian transfer syntax
C-STORE	Composite Store
Ethernet	Network topology devised in 1976 by DIX (DEC/Intel/Xerox) which is the most common in practice today.
IOD	Information Object Definition
MWL	Modality Worklist
OB-GYN	Obstetric or Obstetrical and Gynaecological
OOG	Object Oriented Graphics
PACS	Picture Archiving and Communications Systems
PDU	Protocol Data Unit
RWA	Real-World Activity
SCP	Service Class Provider
SCU	Service Class User
SOP	Service-Object Pair
SR	Structured Reporting
syngo	Siemens DICOM Application Framework - Common User SW
UID	Unique identifier

3.1 Support of Extended Character Sets

The ACUSON S2000 platform supports the ISO 8859 Latin 1 (ISO-IR 100) character set family and the same family with code extensions (ISO 2022 IR 100 Latin-1).

4.0 Implementation Model

ACUSON S2000 system users can store images directly on the system hard drive. Images can also be transferred to DICOM workstations and archive servers on a network. Storage Commitment can be used to insure that patient images and data is safely committed. The system is capable of querying a HIS/RIS, using DICOM Basic Worklist Management Service Class, for a list of scheduled patient procedures. Measurements from OB-GYN, Vascular, and Cardiac exams can be exported as DICOM SR Objects. Performed procedure status and other procedure information can be returned to the HIS/ RIS using Modality Performed Procedure Step (MPPS).

ACUSON S2000 system real world activities are indicated by “Real World Activity” name while “S2000 AE” indicates the invoked Application Entity. Similarly, the activities associated with service providers are indicated as “Real World Service Activity.”

4.1 Application Data Flow Diagrams

Figure 1 illustrates the ACUSON S2000 system Application Entities (AE) in the context of the implementation model. Relationships between users invoked activities (in the circles at the left of the AEs) and the associated real-world activities provided by DICOM service providers (in the circles on the right side of the diagram) are shown.

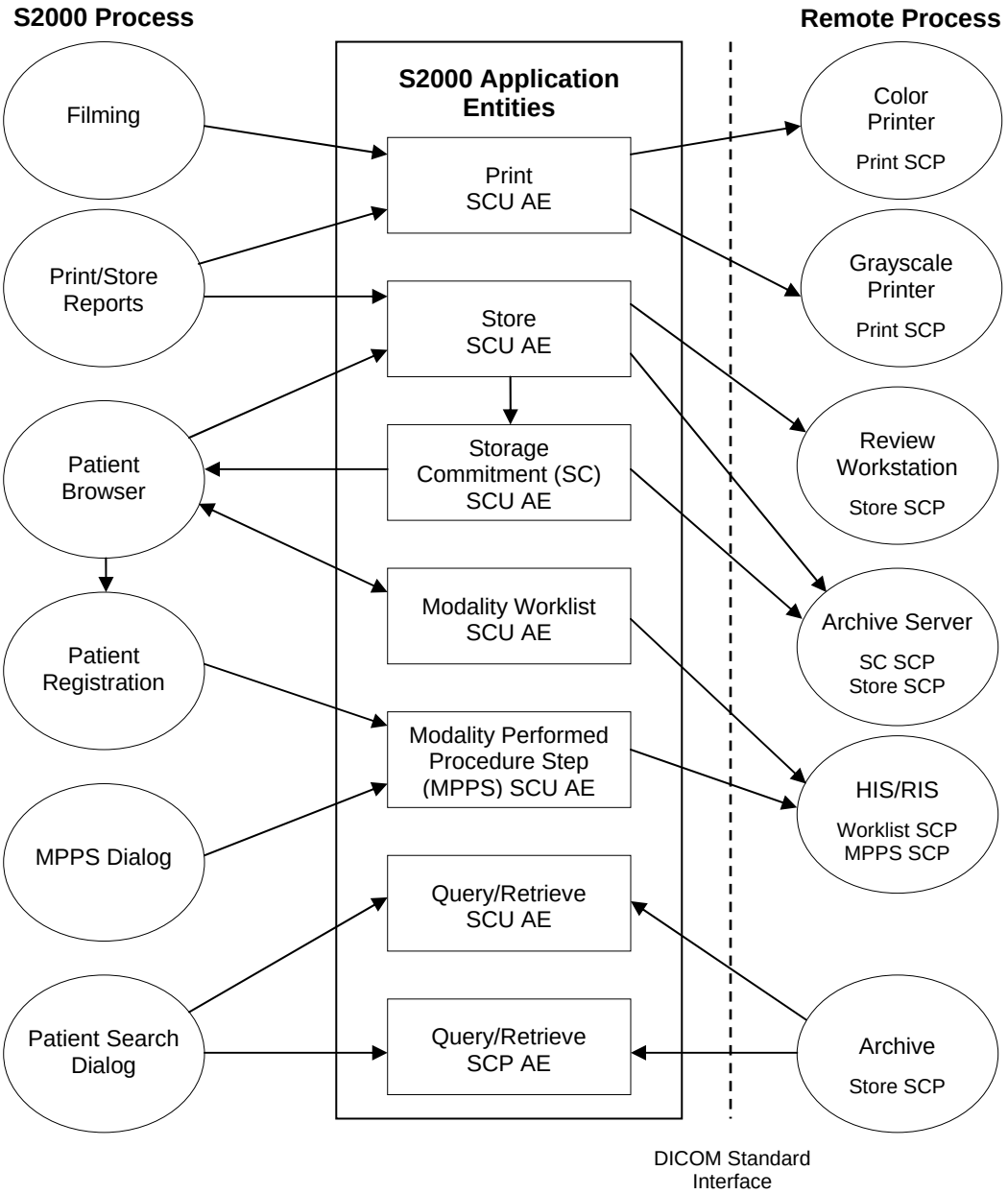

Figure 1: Implementation Model

4.1.1 Verification

Verification is available in the DICOM Network nodes, Print Devices and HIS/RIS Nodes configuration pages of the Local Service UI or the DICOM configuration UI. Verification can be used for diagnostic purposes. When used as a diagnostic tool, Verification will return the following messages to the user:

- Application Entity Title “AE Name” is responding.
- Application Entity Title “AE Name” is not responding.

The ACUSON S2000 system supports the Verification service as SCP and SCU.

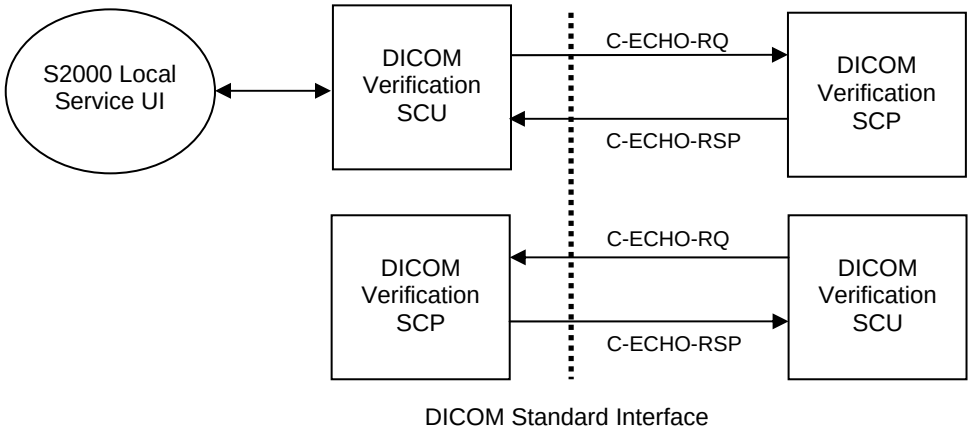

Figure 2: Verification Model

4.1.2 Storage

The ACUSON S2000 system Storage Application Entity originates associations for transfer of DICOM Composite Information Objects to remote Application Entities. The ACUSON S2000 system system acts as SCU for the C-STORE DICOM network service.

If configured, DICOM Store may be invoked by pressing a “Print/Store” key, which causes the image currently displayed on the system monitor screen to be captured to hard drive and transferred. Print/Store keys are configurable through the system presets function. Images may also be manually transferred through the Patient Browser UI screen.

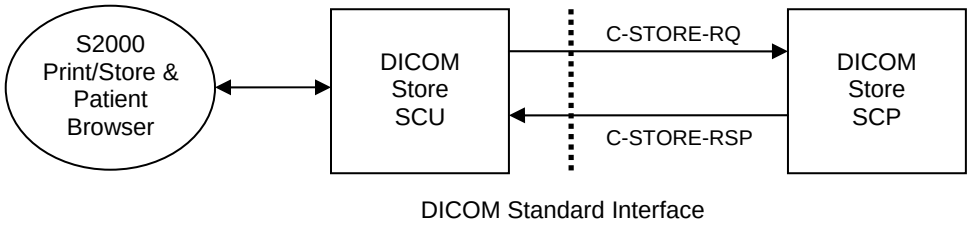

Figure 3: Store Model

4.1.3 Structured Reporting

The Structured Reporting Storage Service Class defines an application-level class of service which facilitates the transfer of measurements obtained from OB-GYN, Vascular, and Cardiac studies to storage devices that support the DICOM Comprehensive Structured Reporting Storage Service class.

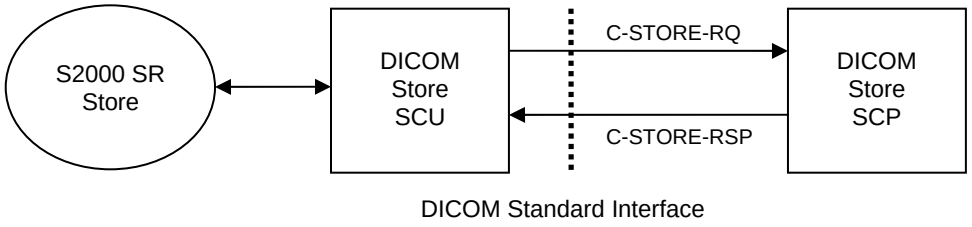

Figure 4: Structured Report Model

4.1.4 Storage Commitment

The Storage Commitment service class defines an application-level class of service which facilitates the commitment to storage. It performs an additional task of commitment of composite objects apart from the network based storage of images as defined by the Storage Service class.

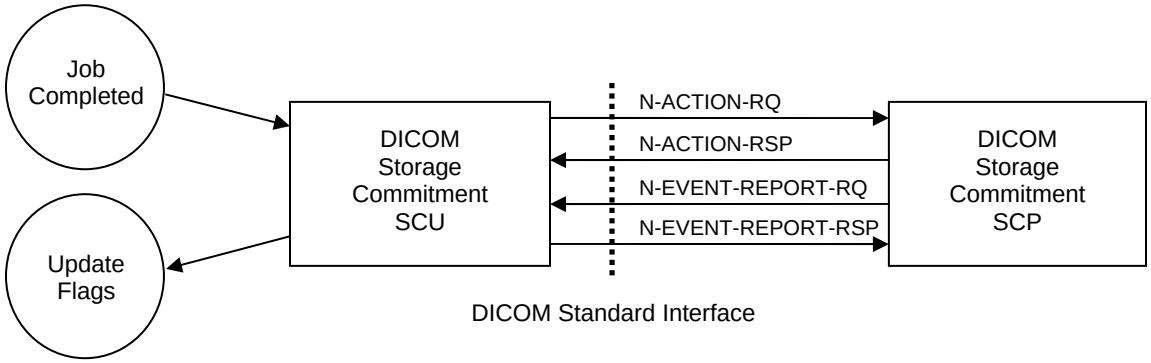

Figure 5: Storage Commitment Model

4.1.5 Print

The Print Management Service Classes define an application-level class of services which facilitate the printing of images on a hardcopy medium. The print management SCU and print management SCP are peer DICOM print management application entities. The DICOM print application supports the print management DIMSE services as SCU.

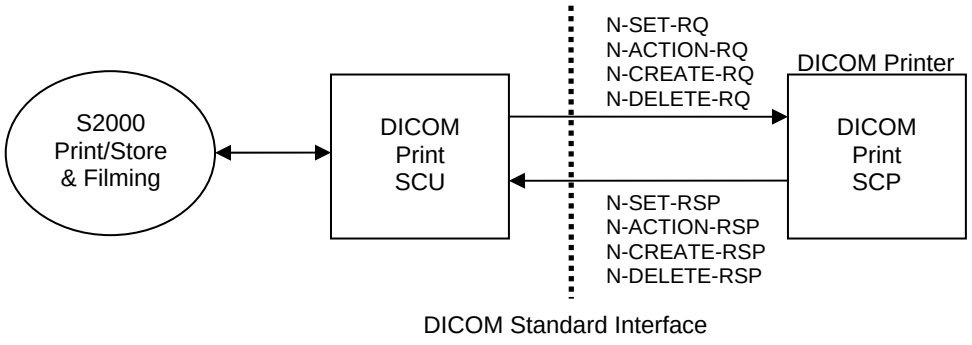

Figure 6: Print Model

4.1.6 Modality Worklist

The Modality Worklist service class defines an application-level class of service which facilitates the transfer of worklists from the information system to the imaging modality. The worklist is queried by the AE and supplies the SCU with the scheduled tasks which have to be performed on the modality. The ACUSON S2000 system DICOM worklist application supports the worklist service as SCU.

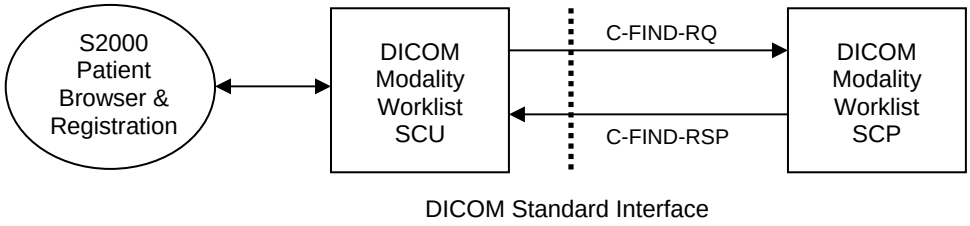

Figure 7: Modality Worklist Model

Note: It is configurable to get the worklist updates either automatically (in a configurable time interval) or manually (initiated by the user). The user can do a broad worklist query (all jobs for the own modality or own application entity).

4.1.7 Modality Performed Procedure Step

The Modality Performed Procedure Step service class defines an application-level class of service which facilitates the transfer of procedure status and billing information from the imaging modality to the information system. The performed procedure step is sent by the ACUSON S2000 system AE and supplies the SCP with the performed tasks on the modality. The DICOM performed procedure step application supports the performed procedure step service as SCU.

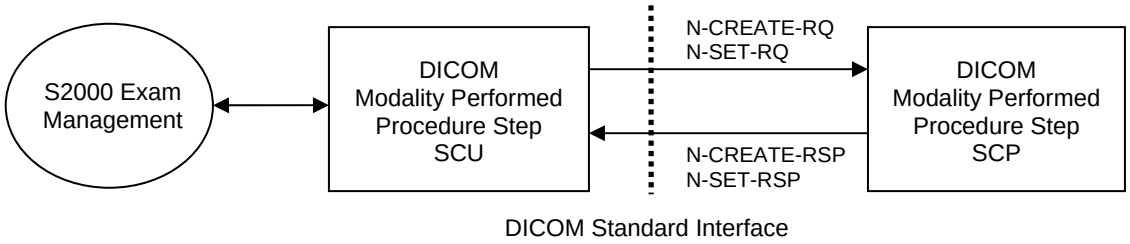

Figure 8: Modality Performed Procedure Step Model

4.1.8 Query / Retrieve

The query/retrieve service class defines an application-level class of services which facilitates the management of images and patient data against the well-defined information model of DICOM and allows a DICOM AE to retrieve images from a remote DICOM node or to request a remote DICOM AE to initiate a transfer of images to another DICOM AE. The ACUSON S2000 system DICOM query/retrieve application supports the query/retrieve services to act as SCU and SCP.

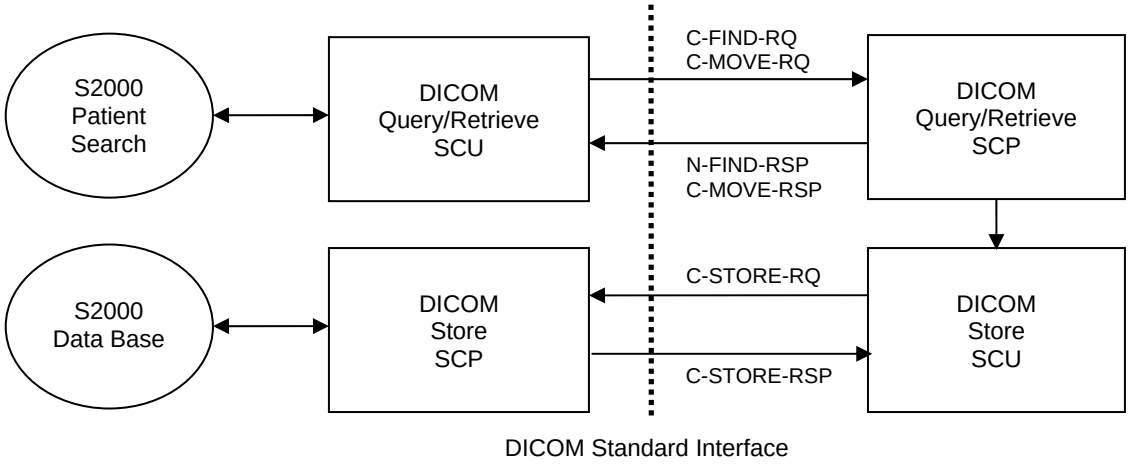

Figure 9: Query/Retrieve Model

4.2 AE Functional Definitions

4.2.1 Verification Real-World Activities

The ACUSON S2000 system verification application entity supports the verification service class as a SCU and as a SCP. As the SCU it allows the operator to verify the ability of a remote DICOM node to receive DICOM messages. As a SCP, it allows for remote DICOM nodes to verify that DICOM message exchange is possible with the ACUSON S2000 system system.

4.2.2 Storage Real-World Activities

The ACUSON S2000 system Storage application entity performs all of the functions necessary to transmit ultrasound images and associated data to DICOM network archive servers and/or workstations. The ACUSON S2000 system Storage AE supports the Ultrasound Image Storage SOP Class, the Ultrasound Multi-Frame Image Storage SOP Class and the Secondary Capture Image SOP Class as a SCU. The ACUSON S2000 system Storage AE initiates separate associations to the storage SCP servers, each time the user selects “Store/Print” or “Send/Archive To Destination”.

4.2.3 Structured Reporting Real-World Activities

The ACUSON S2000 system Storage application entity performs all of the functions necessary to transmit associated data to DICOM network archive servers and/or workstations. The ACUSON S2000 system Storage AE supports the Ultrasound Comprehensive SOP class as SCU. The ACUSON S2000 system Storage AE initiates separate associations to the storage SCP servers, when the study is closed and “Image Auto Transfer” in “Store/Print” is enabled or each time the user selects “Send/Archive To Destination”.

4.2.4 Storage Commitment Real-World Activities

The Storage Commitment Push Model SCU (SC-SCU) uses the Storage Commitment Service Class to request commitment for one or more composite objects from the Storage Commitment Push Model SCP (SC-SCP). SC-SCU issues an N-ACTION-RQ to SC-SCP containing a list of references to composite objects, requesting that the SC-SCP takes responsibility for storage commitment of the composite objects. If the SC-SCP has determined that all the composite objects exist and it has successfully

completed storage commitment for the set of composite objects, it issues an N-EVENT-REPORT-RQ with status successful and the list of stored images. SC-SCU now knows that the composite objects have been committed by SC-SCP and can delete its copies of composite objects. The information from the N_EVENT-REPORT-RQ is propagated back to the user interface.

The ACUSON S2000 system SCU can be configured to receive the N_EVENT_REPORT-RQ on the same association on which N_ACTION-RQ was sent or on a different association.

4.2.5 Print Real-World Activities

The ACUSON S2000 system Print AE provides all aspects of the Print Management SCU. The AE initiates separate associations to the print servers, verifying their on-line status when the user selects “Print/Store” or “Expose Film Job.” The ACUSON S2000 system Print AE accommodates both grayscale and color print servers.

To invoke the Print “REAL WORLD ACTIVITY” the user selects a “Print/Store” key. Film sheets can be transferred immediately after being filled, at the end of exam, or queued to hard disk for transfer later.

After an imaging exam is complete, the user has the ability to Print images stored on the hard drive using the Filming UI. Invoking the “Expose Film Job” Real World activity invokes the DICOM Print activity for selected exams or individual images. “Expose Film Job” is available through the Filming UI function.

4.2.6 Worklist Real-World Activities

Patient registration can be automated by using the ‘Worklist’ Real World Activity.

Double clicking the ‘Scheduler’ icon in the patient browser UI initiates a manual Worklist query. If no matches are found, a message will be presented to the operator indicating so. If one or more patients are found, the scheduler list will be updated with the scheduled procedures. The Worklist feature can be configured to query for either the procedures scheduled for the Local Site (ACUSON S2000 system Worklist SCU AE Title) or for Ultrasound scheduled procedures (Modality = US). Queries can be made for today’s scheduled procedures, or a user specified range of scheduled procedure dates and times. The system can also be configured to perform automatic Worklist queries at user specified intervals.

Patient based queries are supported in the ACUSON S2000 system.

Selection of a patient from the list will cause all demographic information for that patient to be loaded in to the patient data fields in the Patient Registration screen. The following patient registration fields will be populated with matching Worklist attributes.

Table 6: Patient Registration fields populated from Worklist

Data Field	DICOM Attribute	DICOM Tag
Name	Patient's Name	(0010,0010)
ID	Patient ID	(0010,0020)
Date of Birth	Patient's Birth Date	(0010,0030)
Sex	Patient's Sex	(0010,0040)
Height	Patient's Size	(0010,1020)
Weight	Patient's Weight	(0010,1030)
Institution Name	Institution name	(0008,0080)
Performing Physician	Performing Physicians’ Name	(0008,1050)
Referring Physician	Referring Physician's Name	(0008,0090)
Operator	Operator’s Name	(0008,1070)
Accession No.	Accession Number	(0008,0050)
Indication	Admitting Diagnoses Description	(0008,1080)

Data Field	DICOM Attribute	DICOM Tag
Request ID	Requested Procedure ID	(0040,1001)
Requested Procedure	Requested Procedure Description	(0032,1060)
	Scheduled Procedure Step Description	(0040,0007)
Additional info	Additional Patient's History	(0010,21B0)

4.2.7 Modality Performed Procedure Step Real-World Activity

The ACUSON S2000 system supports the DICOM Modality Performed Procedure Step Service as SCU. The modality performed procedure step SCU informs the performed procedure step SCP about the procedure performed at the modality using the N-CREATE and N-SET DIMSE service.

Immediately after a new patient, study or scheduled procedure is registered (via Patient Registration) the ACUSON S2000 system automatically performs an MPPS N-CREATE-RQ operation with a status of IN-PROGRESS for the newly created Performed Procedure Step. When the current patient procedure ends, (either with an End Exam, or new Patient / Study / Procedure) the ACUSON S2000 system automatically performs an MPPS N-SET-RQ final operation with a status of COMPLETED. The user may also manually complete or discontinue the current Performed Procedure Step through the MPPS dialog. An MPPS N-SET-RQ final operation is performed with the appropriate status of COMPLETED or DISCONTINUED.

The modality performed procedure step SCP responds to the N-CREATE-RQ and N-SET-RQ and confirms that it received the information from the modality.

4.2.8 Sequencing of Real-World Activities

In order for any of the remote processes to be able to provide the SCP services which the ACUSON S2000 system system has requested, the appropriate associations must first be opened. This initiation occurs with the following activities:

1. When a "Send To Destination" operation occurs.
2. When one or more Storage SCP devices are configured for transfer "During the exam" and the associated Print/Store key(s) are pressed. The current image displayed on the system screen in captured and transferred.
3. When one or more Storage SCP devices are configured for transfer at "End of exam" and the current patient exam ends (e.g. New Patient, Study or End Exam button is pressed). All images in the current performed procedure are transferred.
4. When configured, Storage Commitment trigger is automatically derived from the successful completion of a Send Job.
5. When an "Expose Film Job" print operation occurs.
6. When one or more Print SCP devices are configured for transfer "During the exam" and the associated Print/Store key(s) are pressed. The current film sheet is transferred after becoming filled.
7. When one or more Print SCP devices are configured for transfer at "End of exam" and the patient procedure ends (e.g. New Patient, Study or End Exam button is pressed). All film sheets in the current performed procedure are transferred.
8. When user initiated or automatic Worklist query operations occur.
9. When configured, MPPS N-CREATE (status = IN PROGRESS) operation is automatically performed when a patient is successfully registered. A MPPS N-SET-RQ is automatically sent when the patient exam ends. The status will be set to COMPLETED or DISCONTINUED depending on the user selection.

5.0 AE Specifications

The following specifications apply to the AE as depicted in Figure 9. The ACUSON S2000 system AE provides conformance to the following DICOM Service SOP Classes as an SCU.

Table 7: Supported SOP Classes

Service SOP Class Name	SOP Class UID	Roles
Verification	1.2.840.10008.1.1	SCU/SCP
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	SCU/SCP
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	SCU/SCP
Ultrasound Multi-frame Image Storage †	1.2.840.10008.5.1.4.1.1.3.1	SCU/SCP
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	SCU
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	SCU
Print Job SOP Class	1.2.840.10008.5.1.1.14	SCU
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31	SCU
Storage Commitment - Push Model	1.2.840.10008.1.20.1	SCU/SCP
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	SCU
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	SCU
Query/Retrieive	1.2.840.10008.5.1.4.1.2.1.1 1.2.840.10008.5.1.4.1.2.1.2	SCU/SCP

† The Ultrasound Multi-frame Image Storage SOP is used to transfer ACUSON S2000 system Ultrasound clips & 3D volumetric data sets. When used for 3D volumetric data sets, each frame represents a single slice from the 3D volume. These 3D images may be viewed as Cine images.

5.1 Verification AE Specification

5.1.1 Association Initiation by Real-World Activity

The ACUSON S2000 system DICOM Service Tool application attempts to initiate a new association for DIMSE C-ECHO service related operations.

5.1.1.1 Real-World Activity - Verification SCU/SCP

5.1.1.1.1 Associated Real-World Activity - Associated Real-World Activity

The associated Real-World activity is a C-ECHO request initiated by the DICOM Service Tool application. If the process successfully establishes an association to a remote Application Entity, it will send the C-ECHO-Request via the open association to verify that the remote Application Entity is responding to DICOM messages. If a remote process successfully establishes an association, the ACUSON S2000 system responds to C-ECHO-Requests made from remote applications.

5.1.1.1.2 Proposed Presentation Contexts - Verification SCU/SCP

The ACUSON S2000™ DICOM application will propose Presentation Contexts as shown in the following table.

Table 8: Verification Presentation Context Table

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU / SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

5.1.1.1.3 SOP Specific Conformance Statement - Verification SCU/SCP

The ACUSON S2000 system conforms to the definition of a Verification SCU & SCP in accordance to the DICOM Standard.

5.2 Storage AE Specification

The ACUSON S2000 system DICOM system provides Standard Conformance to the following DICOM V3.0 SOP Classes as an SCU.

Table 9: Supported Storage SOP Classes

Service SOP Class Name	SOP Class UID
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33

This is accomplished using the DIMSE C-STORE Service to whom the SCU issues a service request with a SOP instance that meets the requirements of the desired ultrasound IOD.

5.2.1 Association Establishment Policies

5.2.1.1 General

The configuration of the ACUSON S2000 system DICOM application allows the definition of remote DICOM devices as well as local ultrasound system Application Entity Titles, the port numbers, the host names and IP addresses.

5.2.1.2 Number of Associations

The ACUSON S2000 system DICOM application initiates several associations at a time, one for each destination to which a transfer request is being processed in the active job queue list.

5.2.1.3 Asynchronous Nature

The ACUSON S2000 system DICOM software does not support asynchronous communication (multiple outstanding transactions over a single association).

5.2.1.4 Implementation Identifying Information

The ACUSON S2000 system DICOM software provides a single Implementation Class UID of

- “1.3.12.2.1107.5.9.20000101”

and an Implementation Version Name of

- "SIEMENS_SWFSYNGO".

5.2.1.5 Maximum PDU Size Offered

The maximum PDU size offered by the ACUSON S2000 system is configurable with default set to 28672 Bytes.

5.2.1.6 DICOM Application Context

DICOM Application context name: 1.2.840.10008.3.1.1.1

5.2.2 Association Initiation by Real-World Activity

The ACUSON S2000 system DICOM application attempts to initiate a new association for DIMSE C-STORE operation.

5.2.2.1 Real World Activity - Storage SCU

The user selects "New Patient" at the start of each new patient examination. The user saves images to the ACUSON S2000 system hard disk with the "Store / Print" button.

5.2.2.1.1 Associated Real World Activities - Storage SCU

An association is established when the user initiates an "Archive to..." or "Send to..." destination operation from the Patient browser screen. Individual images or entire exams can be transferred to the selected DICOM Store device (C-STORE request). The association is opened when the first image of each exam is transferred and closed when the last image transfer is completed.

An association is also established when auto transfer has been configured and the user initiates a "Print/Store" operation. If transfer "during the exam" has been configured, an association is opened for each image acquired during the exam and closed when the image transfer is completed. If transfer at "end of exam" has been configured, an association is opened when the exam is completed (i.e. a new Patient / Study is registered or End Exam is performed). The association is closed when the last image transfer is completed.

If the C-STORE Response from the remote application contains an error status, the association is aborted.

5.2.2.1.2 Proposed Presentation Context

The following Presentation Context(s) is presented to the SCP in an A-Associate request for DIMSE C-STORE storage services. The storage services utilize C-STORE services, whose parameters are defined in PS 3.7.

Table 10: Store Presentation Context Table

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	**UID**	**Name List**	**UID List**		
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Lossy (Baseline)	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Lossless	1.2.840.10008.1.2.4.70	SCU	None

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Lossy (Baseline)	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Lossless	1.2.840.10008.1.2.4.70	SCU	None
Ultrasound Multi-frame Image Storage (Clips)	1.2.840.10008.5.1.4.1.1.3.1	JPEG Lossy (Baseline)	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Lossless	1.2.840.10008.1.2.4.70	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
Ultrasound Multi-frame Image Storage (3D volumetric data sets)	1.2.840.10008.5.1.4.1.1.3.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Lossy (Baseline)	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Lossless	1.2.840.10008.1.2.4.70	SCU	None
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None

5.2.2.1.3 Photometric Interpretation

Photometric Interpretation (color mode of the pixel image data) is not a negotiable parameter in DICOM 3.0. The Photometric Interpretation Attribute (0028,0004) is set depending on the transfer syntax, and the system configuration:

Table 11: Photometric Interpretation

SOP Class		Transfer Syntax		Photometric Interpretation
Name	UID	Name List	UID List	
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Implicit VR Little Endian	1.2.840.10008.1.2	RGB or MONOCHROME2 (if RGB to MONOCHROME is configured)
		Explicit VR Little Endian	1.2.840.10008.1.2.1	
		Explicit VR Big Endian	1.2.840.10008.1.2.2	
		JPEG Lossless	1.2.840.10008.1.2.4.70	
		JPEG Lossy (Baseline)	1.2.840.10008.1.2.4.50	YBR_FULL_422

SOP Class		Transfer Syntax		Photometric Interpretation
Name	**UID**	**Name List**	**UID List**	
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Implicit VR Little Endian	1.2.840.10008.1.2	RGB or MONOCHROME2 (if RGB to MONOCHROME is configured)
		Explicit VR Little Endian	1.2.840.10008.1.2.1	
		Explicit VR Big Endian	1.2.840.10008.1.2.2	
		JPEG Lossless	1.2.840.10008.1.2.4.70	
		JPEG Lossy (Baseline)	1.2.840.10008.1.2.4.50	YBR_FULL_422
Ultrasound Multi-frame Image Storage (Clips)	1.2.840.10008.5.1.4.1.1.3.1	JPEG Lossy (Baseline)	1.2.840.10008.1.2.4.50	YBR_FULL_422
		JPEG Lossless	1.2.840.10008.1.2.4.70	RGB or MONOCHROME (ABVS)
		Implicit VR Little Endian	1.2.840.10008.1.2	
		Explicit VR Little Endian	1.2.840.10008.1.2.1	
		Explicit VR Big Endian	1.2.840.10008.1.2.2	
Ultrasound Multi-frame Image Storage (3D volumetric data sets)	1.2.840.10008.5.1.4.1.1.3.1	Implicit VR Little Endian	1.2.840.10008.1.2	MONOCHROME2
		Explicit VR Little Endian	1.2.840.10008.1.2.1	
		Explicit VR Big Endian	1.2.840.10008.1.2.2	
		JPEG Lossy (Baseline)	1.2.840.10008.1.2.4.50	
		JPEG Lossless	1.2.840.10008.1.2.4.70	

5.2.2.1.4 SOP Specific Conformance to Storage Service SOP Classes

The DICOM images created by the ACUSON S2000 system DICOM application conform to the DICOM IOD definitions (Standard extended IODs). But they will contain additional private elements that may be discarded by a DICOM system when modifying the image.

The following table denotes the attributes included in the Ultrasound Image IOD as implemented on the ACUSON S2000 system system. Attributes not listed are not used.

Table 12: US Image IOD Attributes

Module	Attribute	Tag	Type	Notes
Patient	Patient's Name	(0010,0010)	2	from MWL or user input
	Patient ID	(0010,0020)	2	from MWL or user input
	Patient's Birth Date	(0010,0030)	2	from MWL or user input
	Patient's Sex	(0010,0040)	2	from MWL or user input
	Other Patient IDs	(0010,1000)	3	from MWL
	Other Patient Names	(0010,1001)	3	from MWL
	Ethnic Group	(0010,2160)	3	from MWL
	Patient Comments	(0010,4000)	3	from MWL

Module	Attribute	Tag	Type	Notes
General Study	Study Instance UID	(0020,000D)	1	from MWL or created
	Study Date	(0008,0020)	2	created
	Study Time	(0008,0030)	2	created
	Referring Physician's Name	(0008,0090)	2	from MWL or user input
	Study ID	(0020,0010)	2	created
	Accession Number	(0008,0050)	2	from MWL or user input
	Study Description	(0008,1030)	3	From MWL (requested procedure description or scheduled procedure step description) or user selected
	Referenced Study Sequence	(0008,1110)	3	from MWL or zero length
	>Referenced SOP Class UID	(0008,1150)	1C	
	>Referenced SOP Instance UID	(0008,1155)	1C	
	Procedure Code Sequence	(0008,1032)	3	
	> Include ‘Code Sequence Macro’		1C	
Patient Study	Admitting Diagnoses Description	(0008,1080)	3	from MWL or user input
	Patient's Age	(0010,1010)	3	calculated or user input
	Patient's Size	(0010,1020)	3	from MWL or user input
	Patient's Weight	(0010,1030)	3	from MWL or user input
	Additional Patient’s History	(0010,21B0)	3	from MWL or user input
General Series	Modality	(0008,0060)	1	Set to US
	Series Instance UID	(0020,000E)	1	created
	Series Number	(0020,0011)	2	Set to 1...n
	Laterality	(0020,0060)	2C	Set to zero length
	Series Date	(0008,0021)	3	created
	Series Time	(0008,0031)	3	created
	Performing Physicians’ Name	(0008,1050)	3	from MWL or user input
	Protocol Name	(0018,1030)	3	user input
	Series Description	(0008,103E)	3	user input
	Operators' Name	(0008,1070)	3	user input
	Referenced Study Component Sequence	(0008,1111)	3	created (if MPPS is supported)
	>Referenced SOP Class UID	(0008,1150)	1C	1.2.840.10008.3.1.2.3.3 (MPPS SOP Class)
	>Referenced SOP Instance UID	(0008,1155)	1C	MPPS SOP Instance UID
	Body Part Examined	(0018,0015)	3	user selected
	Request Attributes Sequence	(0040,0275)	3	from MWL or zero length
	>Requested Procedure ID	(0040,1001)	1C	
	>Scheduled Procedure Step ID	(0040,0009)	1C	
	>Scheduled Procedure Step Description	(0040,0007)	3	
	>Scheduled Protocol Code Sequence	(0040,0008)	3	
	>>Include ‘Code Sequence Macro’		1C	
	Performed Procedure Step ID	(0040,0253)	3	from MWL Scheduled Procedure Step ID or created
	Performed Procedure Step Start Date	(0040,0244)	3	created

Module	Attribute	Tag	Type	Notes
	Performed Procedure Step Start Time	(0040,0245)	3	created
	Performed Procedure Step Description	(0040,0254)	3	from MWL Scheduled Procedure Step Description or user input
	Performed Protocol Code Sequence	(0040,0260)	3	
	>Include 'Code Sequence Macro'		1C	
	Comments on the Performed Procedure Step	(0040,0280)	3	from MPPS dialog
General Equipment	Manufacturer	(0008,0070)	2	Set to "SIEMENS"
	Institution Name	(0008,0080)	3	from MWL or user selected
	Institution Address	(0008,0081)	3	from MWL
	Station Name	(0008,1010)	3	Set to the computer's host name
	Manufacturer's Model Name	(0008,1090)	3	Set to "S2000"
	Device Serial Number	(0018,1000)	3	Set to system serial number
	Software Versions	(0018,1020)	3	Set to "VB20"
General Image	Instance Number	(0020,0013)	2	1...n
	Patient Orientation	(0020,0020)	2C	Set to zero length
	Acquisition Date	(0008,0022)	2	created
	Content Date	(0008,0023)	2C	created
	Acquisition Time	(0008,0032)	3	created
	Content Time	(0008,0033)	2C	created
	Derivation Description	(0008,2111)	3	Compress BN JPEG Lossy (xx/xxx.xx). Used if JPEG Lossy compression is applied. Set to: Force Owner CSA-DICOM, CONVERT RGB, US to MONOCHROME2 when RGB to MONOCHROME2 is configured for remote destination.
	Source Image Sequence	(0008,2112)	3	Used if 3D rendering to reference 3D Volume.
	>Referenced SOP Class UID	(0008,1150)	1C	
	>Referenced SOP Instance UID	(0008,1155)	1C	
	>Referenced Frame Number	(0008,1160)	3	
	Image Comments	(0020,4000)	3	user input
	Lossy Image Compression Ratio	(0028,2112)	3	Only used with JPEG Lossy compression
Image Pixel	Rows	(0028,0010)	1	Set to 768
	Columns	(0028,0011)	1	Set to 1024
	Pixel Data	(7FE0,0010)	1	
US Region Calibration	Sequence of Ultrasound Regions	(0018,6011)	1	one created for each US region displayed
	>Region Spatial Format	(0018,6012)	1	
	>Region Data Type	(0018,6014)	1	
	>Region Flags	(0018,6016)	1	
	>Region Location Min x0	(0018,6018)	1	
	>Region Location Min y0	(0018,601A)	1	
	>Region Location Max x1	(0018,601C)	1	
	>Region Location Max y1	(0018,601E)	1	

Module	Attribute	Tag	Type	Notes
	>Reference Pixel x0	(0018,6020)	3	
	>Reference Pixel y0	(0018,6022)	3	
	>Physical Units X Direction	(0018,6024)	1	
	>Physical Units Y Direction	(0018,6026)	1	
	>Ref. Pixel Physical Value X	(0018,6028)	3	
	>Ref. Pixel Physical Value Y	(0018,602A)	3	
	>Physical Delta X	(0018,602C)	1	
	>Physical Delta Y	(0018,602E)	1	
	>Transducer Frequency	(0018,6030)	3	
	>Pulse Repetition Frequency	(0018,6032)	3	Color Flow and Doppler regions only
	>Doppler Correction Angle	(0018,6034)	3	Doppler regions only
US Image Module	Samples Per Pixel	(0028,0002)	1	Set to 3. Set to 1 if RGB to MONOCROME2 is Configured for remote Destination.
	Photometric Interpretation	(0028,0004)	1	See Table 11.
	Bits Allocated	(0028,0100)	1	Set to 8
	Bits Stored	(0028,0101)	1	Set to 8
	High Bit	(0028,0102)	1	Set to 7
	Planar Configuration	(0028,0006)	1C	Set to 0 (color-by-pixel)
	Ultrasound Color Data Present	(0028,0014)	1C	Set to 1 if Color Flow or Pseudo Color in image
	Pixel Representation	(0028,0103)	1	Set to 0 (unsigned integer)
	Image Type	(0008,0008)	2	Normally ORIGINAL/PRIMARY. Set to DERIVED/PRIMARY if RGB to MONOCHROME2 is configured for remote destination.
	Lossy Image Compression	(0028,2110)	1C	= 01 if JPEG lossy compressed
	Heart Rate	(0018,1088)	3	Beats per minute
	Transducer Data	(0018,5010)	3	Probe name (e.g. C5-2)
	Mechanical Index	(0018,5022)	3	B-mode only
	Bone Thermal Index	(0018,5024)	3	Doppler, M-Mode & Color Flow only
	Cranial Thermal Index	(0018,5026)	3	Cranial Doppler only
	Soft Tissue Thermal Index	(0018,5027)	3	Doppler, M-Mode & Color Flow only

Module	Attribute	Tag	Type	Notes
Overlay Plane (not included if burned in graphics is selected)	Overlay Rows	(60xx,0010)	1	Set to 768
	Overlay Columns	(60xx,0011)	1	Set to 1024
	Overlay Type	(60xx,0040)	1	Set to G
	Overlay Origin	(60xx,0050)	1	Set to 1\1
	Overlay Bits Allocated	(60xx,0100)	1	Set to 1
	Overlay Bit Position	(60xx,0102)	1	Set to 0
	Overlay Data	(60xx,3000)	1C	
	Overlay Description	(60xx,0022)	3	Set to “Siemens MedCom Object Graphics”
SOP Common	SOP Class UID	(0008,0016)	1	1.2.840.10008.5.1.4.1.1.6.1
	SOP Instance UID	(0008,0018)	1	created
	Specific Character Set	(0008,0005)	1C	From MWL or set to ISO_IR 100
	Instance Creation Date	(0008,0012)	3	created
	Instance Creation Time	(0008,0013)	3	created
Standard Extended SOP Class - Standard and Private Attributes				
Patient Demographic	Patient's Address	(0010,1040)	3	from MWL
	Military Rank	(0010,1080)	3	from MWL
Patient Medical	Medical Alerts	(0010,2000)	3	from MWL
	Contrast Allergies	(0010,2110)	3	from MWL
	Smoking Status	(0010,21A0)	3	from MWL
	Pregnancy Status	(0010,21C0)	3	from MWL
	Last Menstrual Date	(0010,21D0)	3	from MWL or input by user
	Special Needs	(0038,0050)	3	from MWL
	Patient State	(0038,0500)	3	from MWL
Image Plane	Pixel Spacing	(0028,0030)	3	This attribute is not included in images that contain Doppler or M-Mode data, or images that contain more than one 2D tissue region.
Study Scheduling	Requesting Physician	(0032,1032)	3	from MWL
	Requesting Service	(0032,1033)	3	from MWL
	Requested Procedure Description	(0032,1060)	3	from MWL
	Requested Procedure Code Sequence	(0032,1064)	3	from MWL
	>Include ‘Code Sequence Macro’		1C	
Study Classification	Study Comments	(0032,4000)	3	input by user
Multi-Frame Overlay	Number of Frames in Overlay	(60xx,0015)	3	Set to 1 (only used if overlay is present)
	Image Frame Origin	(60xx,0051)	3	Set to 1 (only used if overlay is present)
S2000 Private Attributes	Private Creator	(0019,0001)	3	SIEMENS MED SMS USG S2000
	Private Creator Version	(0019,1000)	3	1.1
	Frame Rate	(0019,1003)	3	in fps

Module	Attribute	Tag	Type	Notes
S2000 Private Attributes	Burned in Graphics	(0019,100C)	3	0 = Overlay, 1 = Graphics burned into pixel data
	SieClear Index	(0019,100D)	3	Off, 1, 2, 3, 4
	B-Mode Submode	(0019,1020)	3	GEN, THI, etc.
	B-Mode Dynamic Range	(0019,1021)	3	in dB
	B-Mode Overall Gain	(0019,1022)	3	in dB
	B-Mode Res/Speed Index	(0019,1023)	3	Resolution Vs. Speed
	B-Mode Edge Enhance Index	(0019,1024)	3	
	B-Mode Persistence Index	(0019,1025)	3	
	B-Mode Map Index	(0019,1026)	3	
	B-Mode Tint Type	(0019,102A)	3	0 = Grayscale, 1 = Color Balance, 2 = Pseudo Color
	B-Mode Tint Index	(0019,102D)	3	
	ClarifyVE Index	(0019,102E)	3	Off, 1, 2, 3, 4, 5, 6, 7
	Image Flag	(0019,103A)	3	1 = flagged image, 0 (or not present) = not flagged
	IPDA/MDA Data	(0019,103B)	3	
	Thumbnail Data	(0019,103C)	3	
	Color Flow state	(0019,1040)	3	Low, Gen, High
	Color Flow Wall Filter Index	(0019,1041)	3	
	Color Flow Submode	(0019,1042)	3	Power, CDV, CDE, VEL
	Color Flow Overall Gain	(0019,1043)	3	in dB
	Color Flow Res/Speed Index	(0019,1044)	3	
	Color Flow Smooth Index	(0019,1046)	3	
	Color Flow Persistence Index	(0019,1047)	3	
	Color Flow Map Index	(0019,1048)	3	
	Color Flow Priority Index	(0019,1049)	3	
	Color Flow Maximum Velocity	(0019,1054)	3	in cm/sec
	Doppler Dynamic Range	(0019,1060)	3	in dB
	Doppler Overall Gain	(0019,1061)	3	in dB
	Doppler Wall Filter	(0019,1062)	3	in Hz
	Doppler Gate Size	(0019,1063)	3	in cm
	Doppler Map Index	(0019,1065)	3	
	Doppler Submode	(0019,1066)	3	PW, CW, etc.
	Doppler Time/Freq Res Index	(0019,1069)	3	
	Doppler Trace Inverted	(0019,106A)	3	0, 1
	Doppler Tint Type	(0019,106C)	3	0 = Grayscale, 1 = Color Balance, 2 = Pseudo Color
	Doppler Tint Index	(0019,1072)	3	
	M-Mode Dynamic Range	(0019,1080)	3	in dB
	M-Mode Overall Gain	(0019,1081)	3	in dB
	M-Mode Edge Enhance Index	(0019,1082)	3	
	M-Mode Map Index	(0019,1083)	3	

Module	Attribute	Tag	Type	Notes
S2000 Private Attributes	M-Mode Tint Type	(0019,1086)	3	0 = Grayscale, 1 = Color Balance, 2 = Pseudo Color
	M-Mode Submode	(0019,1087)	3	GEN
	M-Mode Tint Index	(0019,1088)	3	
	App Model Data	(0019,10A0)	3	
MedCom Private Attributes †	MedCom Header Info - Private Creator	(0029,0010)	3	SIEMENS MEDCOM HEADER
	MedCom Header data	(0029,1020)	3	
	PMTF Information 1	(0029,1031)	3	
	PMTF Information 2	(0029,1032)	3	
	PMTF Information 3	(0029,1033)	3	
	PMTF Information 4	(0029,1034)	3	DB TO DICOM
	MedCom OOG - Private Creator	(0029,0011)	3	SIEMENS MEDCOM OOG
	MedCom OOG Type	(0029,1108)	3	MEDCOM OOG 2
	MedCom OOG Version	(0029,1109)	3	VE31F
	MedCom OOG Info	(0029,1110)	3	

† The ACUSON S2000 system uses syngo MedCom private elements. These private elements are used between the ACUSON S2000 AE and other syngo based AE's to describe Object Oriented Graphics (OOG). This module is used when object graphics are drawn on the image and stores the properties of the graphics objects (Line, Circle, Rectangle, Arrows, etc.). The graphics objects will remain re-animate-able even if such an image is transferred via the DICOM C-Store SOP Class. The graphics objects may also be stored in a single image overlay plane for compatibility with other products which don't support the OOG module. These private elements should be discarded by non-syngo based DICOM application entities when modifying the image overlay data.

This table denotes the attributes included in the Secondary Capture Image IOD as implemented on the ACUSON S2000 system. Attributes not listed are not used.

Table 13: Secondary Capture IOD Attributes

Module	Attribute	Tag	Type	Notes
Patient	Patient's Name	(0010,0010)	2	from MWL or user input
	Patient ID	(0010,0020)	2	from MWL or user input
	Patient's Birth Date	(0010,0030)	2	from MWL or user input
	Patient's Sex	(0010,0040)	2	from MWL or user input
	Other Patient IDs	(0010,1000)	3	from MWL
	Other Patient Names	(0010,1001)	3	from MWL
	Ethnic Group	(0010,2160)	3	from MWL
	Patient Comments	(0010,4000)	3	from MWL
General Study	Study Instance UID	(0020,000D)	1	from MWL or created
	Study Date	(0008,0020)	2	created
	Study Time	(0008,0030)	2	created
	Referring Physician's Name	(0008,0090)	2	from MWL or user input
	Study ID	(0020,0010)	2	created
	Accession Number	(0008,0050)	2	from MWL or user input
	Study Description	(0008,1030)	3	from MWL (requested procedure description or scheduled procedure step description) or user selected
	Referenced Study Sequence	(0008,1110)	3	from MWL or zero length

Module	Attribute	Tag	Type	Notes
	>Referenced SOP Class UID	(0008,1150)	1C	
	>Referenced SOP Instance UID	(0008,1155)	1C	
	Procedure Code Sequence	(0008,1032)	3	
	> Include 'Code Sequence Macro'		1C	
Patient Study	Admitting Diagnoses Description	(0008,1080)	3	from MWL or user input
	Patient's Age	(0010,1010)	3	calculated or user input
	Patient's Size	(0010,1020)	3	from MWL or user input
	Patient's Weight	(0010,1030)	3	from MWL or user input
	Additional Patient's History	(0010,21B0)	3	from MWL or user input
General Series	Series Instance UID	(0020,000E)	1	created
	Series Number	(0020,0011)	2	Set to 1...n
	Laterality	(0020,0060)	2C	Set to zero length
	Series Date	(0008,0021)	3	created
	Series Time	(0008,0031)	3	created
	Performing Physicians' Name	(0008,1050)	3	from MWL or user input
	Protocol Name	(0018,1030)	3	user input
	Series Description	(0008,103E)	3	user input
	Operators' Name	(0008,1070)	3	user input
	Referenced Study Component Sequence	(0008,1111)	3	created (if MPPS is supported)
	>Referenced SOP Class UID	(0008,1150)	1C	1.2.840.10008.3.1.2.3.3 (MPPS SOP Class)
	>Referenced SOP Instance UID	(0008,1155)	1C	MPPS SOP Instance UID
	Body Part Examined	(0018,0015)	3	user selected
	Request Attributes Sequence	(0040,0275)	3	from MWL or zero length
	>Requested Procedure ID	(0040,1001)	1C	
	>Scheduled Procedure Step ID	(0040,0009)	1C	
	>Scheduled Procedure Step Description	(0040,0007)	3	
	>Scheduled Protocol Code Sequence	(0040,0008)	3	
	>>Include 'Code Sequence Macro'		1C	
	Performed Procedure Step ID	(0040,0253)	3	from MWL Scheduled Procedure Step ID or created
	Performed Procedure Step Start Date	(0040,0244)	3	created
	Performed Procedure Step Start Time	(0040,0245)	3	created
	Performed Procedure Step Description	(0040,0254)	3	from MWL Scheduled Procedure Step Description or user input
	Performed Protocol Code Sequence	(0040,0260)	3	
	>Include 'Code Sequence Macro'		1C	
	Comments on the Performed Procedure Step	(0040,0280)	3	from MPPS dialog
General Equipment	Manufacturer	(0008,0070)	2	Set to "SIEMENS"
	Institution Name	(0008,0080)	3	from MWL or user selected
	Institution Address	(0008,0081)	3	from MWL
	Station Name	(0008,1010)	3	Set to the computer's host name
	Manufacturer's Model Name	(0008,1090)	3	Set to "S2000"

Module	Attribute	Tag	Type	Notes
	Device Serial Number	(0018,1000)	3	Set to system serial number
	Software Versions	(0018,1020)	3	Set to “VB20”
SC Equipment	Conversion Type	(0008,0064)	1	Set to WSD
	Modality	(0008,0060)	3	Set to US
General Image	Instance Number	(0020,0013)	2	1...n
	Patient Orientation	(0020,0020)	2C	Set to zero length
	Content Date	(0008,0023)	2C	created
	Content Time	(0008,0033)	2C	created
	Image Type	(0008,0008)	3	ORIGINAL/PRIMARY
	Acquisition Date	(0008,0022)	2	created
	Acquisition Time	(0008,0032)	3	created
	Derivation Description	(0008,2111)	3	Compress BN JPEG Lossy (xx/xxx.xx). Only used with JPEG Lossy compression.
	Image Comments	(0020,4000)	3	user input
	Lossy Image Compression	(0028,2110)	1C	= 01 if JPEG Lossy compression
	Lossy Image Compression Ratio	(0028,2112)	3	Only used with JPEG Lossy compression
Image Pixel	Samples Per Pixel	(0028,0002)	1	Set to 3
	Photometric Interpretation	(0028,0004)	1	See Table 11.
	Rows	(0028,0010)	1	Set to 768
	Columns	(0028,0011)	1	Set to 1024
	Bits Allocated	(0028,0100)	1	Set to 8
	Bits Stored	(0028,0101)	1	Set to 8
	High Bit	(0028,0102)	1	Set to 7
	Pixel Representation	(0028,0103)	1	Set to 0 (unsigned integer)
	Pixel Data	(7FE0,0010)	1	
	Planar Configuration	(0028,0006)	1C	Set to 0 (color-by-pixel)
SOP Common	SOP Class UID	(0008,0016)	1	1.2.840.10008.5.1.4.1.1.7
	SOP Instance UID	(0008,0018)	1	created
	Specific Character Set	(0008,0005)	1C	From MWL or set to ISO_IR 100
	Instance Creation Date	(0008,0012)	3	created
	Instance Creation Time	(0008,0013)	3	created
Standard Extended SOP Class - Standard and Private Attributes				
Patient Demographic	Patient's Address	(0010,1040)	3	from MWL
	Military Rank	(0010,1080)	3	from MWL
Patient Medical	Medical Alerts	(0010,2000)	3	from MWL
	Contrast Allergies	(0010,2110)	3	from MWL
	Smoking Status	(0010,21A0)	3	from MWL
	Pregnancy Status	(0010,21C0)	3	from MWL
	Last Menstrual Date	(0010,21D0)	3	from MWL or input by user
	Special Needs	(0038,0050)	3	from MWL
	Patient State	(0038,0500)	3	from MWL

Module	Attribute	Tag	Type	Notes
Study Scheduling	Requesting Physician	(0032,1032)	3	from MWL
	Requesting Service	(0032,1033)	3	from MWL
	Requested Procedure Description	(0032,1060)	3	from MWL
	Requested Procedure Code Sequence	(0032,1064)	3	from MWL
	>Include 'Code Sequence Macro'		1C	
Study Classification	Study Comments	(0032,4000)	3	input by user
MedCom Private Attributes †	MedCom Header Info - Private Creator	(0029,0010)	3	SIEMENS MEDCOM HEADER
	MedCom Header data	(0029,1020)	3	
	PMTF Information 1	(0029,1031)	3	
	PMTF Information 2	(0029,1032)	3	
	PMTF Information 3	(0029,1033)	3	
	PMTF Information 4	(0029,1034)	3	DB TO DICOM
	MedCom OOG - Private Creator	(0029,0011)	3	SIEMENS MEDCOM OOG
	MedCom OOG Type	(0029,1108)	3	MEDCOM OOG 2
	MedCom OOG Version	(0029,1109)	3	VE31F
	MedCom OOG Info	(0029,1110)	3	

† The ACUSON S2000 system uses syngo MedCom private elements. These private elements are used between the ACUSON S2000 AE and other syngo based AE's to describe Object Oriented Graphics (OOG). This module is used when object graphics are drawn on the image and stores the properties of the graphics objects (Line, Circle, Rectangle, Arrows, etc.). The graphics objects will remain re-animate-able even if such an image is transferred via the DICOM C-Store SOP Class. The graphics objects may also be stored in a single image overlay plane for compatibility with other products which don't support the OOG module. These private elements should be discarded by non-syngo based DICOM application entities when modifying the image overlay data.

This table denotes the attributes included in the Ultrasound Multi-frame Image IOD as implemented on the ACUSON S2000 system, when used for Clip images. Attributes not listed are not used.

Table 14: US-MF IOD Attributes – Clips

Module	Attribute	Tag	Type	Notes
Patient	Patient's Name	(0010,0010)	2	from MWL or user input
	Patient ID	(0010,0020)	2	from MWL or user input
	Patient's Birth Date	(0010,0030)	2	from MWL or user input
	Patient's Sex	(0010,0040)	2	from MWL or user input
	Other Patient IDs	(0010,1000)	3	from MWL
	Other Patient Names	(0010,1001)	3	from MWL
	Ethnic Group	(0010,2160)	3	from MWL
	Patient Comments	(0010,4000)	3	from MWL
General Study	Study Instance UID	(0020,000D)	1	from MWL or created
	Study Date	(0008,0020)	2	created
	Study Time	(0008,0030)	2	created
	Referring Physician's Name	(0008,0090)	2	from MWL or user input
	Study ID	(0020,0010)	2	created
	Accession Number	(0008,0050)	2	from MWL or user input

Module	Attribute	Tag	Type	Notes
	Study Description	(0008,1030)	3	from MWL (requested procedure description or scheduled procedure step description) or user selected
	Referenced Study Sequence	(0008,1110)	3	from MWL or zero length
	>Referenced SOP Class UID	(0008,1150)	1C	
	>Referenced SOP Instance UID	(0008,1155)	1C	
	Procedure Code Sequence	(0008,1032)	3	
	> Include 'Code Sequence Macro'		1C	
Patient Study	Admitting Diagnoses Description	(0008,1080)	3	from MWL or user input
	Patient's Age	(0010,1010)	3	calculated or user input
	Patient's Size	(0010,1020)	3	from MWL or user input
	Patient's Weight	(0010,1030)	3	from MWL or user input
	Additional Patient's History	(0010,21B0)	3	from MWL or user input
General Series	Modality	(0008,0060)	1	Set to US
	Series Instance UID	(0020,000E)	1	created
	Series Number	(0020,0011)	2	Set to 1...n
	Laterality	(0020,0060)	2C	Set to zero length
	Series Date	(0008,0021)	3	created
	Series Time	(0008,0031)	3	created
	Performing Physicians' Name	(0008,1050)	3	from MWL or user input
	Protocol Name	(0018,1030)	3	user input
	Series Description	(0008,103E)	3	user input
	Operators' Name	(0008,1070)	3	user input
	Referenced Study Component Sequence	(0008,1111)	3	created (if MPPS is supported)
	>Referenced SOP Class UID	(0008,1150)	1C	1.2.840.10008.3.1.2.3.3 (MPPS SOP Class)
	>Referenced SOP Instance UID	(0008,1155)	1C	MPPS SOP Instance UID
	Body Part Examined	(0018,0015)	3	user selected
	Request Attributes Sequence	(0040,0275)	3	from MWL or zero length
	>Requested Procedure ID	(0040,1001)	1C	
	>Scheduled Procedure Step ID	(0040,0009)	1C	
	>Scheduled Procedure Step Description	(0040,0007)	3	
	>Scheduled Protocol Code Sequence	(0040,0008)	3	
	>>Include 'Code Sequence Macro'		1C	
	Performed Procedure Step ID	(0040,0253)	3	from MWL Scheduled Procedure Step ID or created
	Performed Procedure Step Start Date	(0040,0244)	3	created
	Performed Procedure Step Start Time	(0040,0245)	3	created
	Performed Procedure Step Description	(0040,0254)	3	from MWL Scheduled Procedure Step Description or user input
	Performed Protocol Code Sequence	(0040,0260)	3	
	>Include 'Code Sequence Macro'		1C	
	Comments on the Performed Procedure Step	(0040,0280)	3	from MPPS dialog

Module	Attribute	Tag	Type	Notes
General Equipment	Manufacturer	(0008,0070)	2	Set to “SIEMENS”
	Institution Name	(0008,0080)	3	from MWL or user selected
	Institution Address	(0008,0081)	3	from MWL
	Station Name	(0008,1010)	3	Set to the computer’s host name
	Manufacturer’s Model Name	(0008,1090)	3	Set to “S2000”
	Device Serial Number	(0018,1000)	3	Set to system serial number
	Software Versions	(0018,1020)	3	Set to “VB20”
General Image	Instance Number	(0020,0013)	2	1...n
	Patient Orientation	(0020,0020)	2C	Set to zero length except for ABVS clips
	Content Date	(0008,0023)	2C	created
	Content Time	(0008,0033)	2C	created
	Acquisition Date	(0008,0022)	2	created
	Acquisition Time	(0008,0032)	3	created
	Acquisition Datetime	(0008,002A)	3	created
	Derivation Description	(0008,2111)	3	Compress BN JPEG Lossy (xx) where (xx) is the compression ratio.
	Image Comments	(0020,4000)	3	user input
	Lossy Image Compression Ratio	(0028,2112)	3	Only used with JPEG Lossy compression
Image Pixel	Rows	(0028,0010)	1	
	Columns	(0028,0011)	1	
	Pixel Data	(7FE0,0010)	1	
Cine	Frame Time Vector	(0018,1065)	1C	1 to Number of Frames
Multi-Frame	Number of Frames	(0028,0008)	1	
US Region Calibration	Sequence of Ultrasound Regions	(0018,6011)	1	one created for each US region displayed
	>Region Spatial Format	(0018,6012)	1	
	>Region Data Type	(0018,6014)	1	
	>Region Flags	(0018,6016)	1	
	>Region Location Min x0	(0018,6018)	1	
	>Region Location Min y0	(0018,601A)	1	
	>Region Location Max x1	(0018,601C)	1	
	>Region Location Max y1	(0018,601E)	1	
	>Reference Pixel x0	(0018,6020)	3	
	>Reference Pixel y0	(0018,6022)	3	
	>Physical Units X Direction	(0018,6024)	1	
	>Physical Units Y Direction	(0018,6026)	1	
	>Ref. Pixel Physical Value X	(0018,6028)	3	
	>Ref. Pixel Physical Value Y	(0018,602A)	3	
	>Physical Delta X	(0018,602C)	1	
	>Physical Delta Y	(0018,602E)	1	
	>Transducer Frequency	(0018,6030)	3	
	>Pulse Repetition Frequency	(0018,6032)	3	Color Flow and Doppler regions only
	>Doppler Correction Angle	(0018,6034)	3	Doppler regions only

Module	Attribute	Tag	Type	Notes
US Image Module	Samples Per Pixel	(0028,0002)	1	Set to 3 Set to 1 if RGB to MONOCHROME2 is Configured for remote destination
	Photometric Interpretation	(0028,0004)	1	See Table 11.
	Bits Allocated	(0028,0100)	1	Set to 8
	Bits Stored	(0028,0101)	1	Set to 8
	High Bit	(0028,0102)	1	Set to 7
	Planar Configuration	(0028,0006)	1C	Set to 0 (color-by-pixel)
	Ultrasound Color Data Present	(0028,0014)	1C	Set to 1 if Color Flow or Pseudo Color in image
	Pixel Representation	(0028,0103)	1	Set to 0 (unsigned integer)
	Frame Increment Pointer	(0028,0009)	1C	Sequencing by Frame Time Vector (0018,1065)
	Image Type	(0008,0008)	2	DERIVED / PRIMARY
	Lossy Image Compression	(0028,2110)	1C	Set to 01
	Heart Rate	(0018,1088)	3	Beats per minute
	Transducer Data	(0018,5010)	3	Probe name (e.g. C5-2)
	Mechanical Index	(0018,5022)	3	B-mode only
	Bone Thermal Index	(0018,5024)	3	Doppler, M-Mode & Color Flow only
	Cranial Thermal Index	(0018,5026)	3	Cranial Doppler only
	Soft Tissue Thermal Index	(0018,5027)	3	Doppler, M-Mode & Color Flow only
Overlay Plane	Overlay Rows	(6000,0010)	1	Set to 600
	Overlay Columns	(6000,0011)	1	Set to 800
	Overlay Type	(6000,0040)	1	Set to “G” (for Graphics)
	Overlay Origin	(6000,0050)	1	Set to 1\1
	Overlay Bits Allocated	(6000, 0100)	1	Set to 1
	Overlay Bit Position	(6000,0102)	1	Set to 0
	Overlay Data	(6000,3000)	1	Contains the overlay pixel data
Multi-Frame Overlay	Number of Frames in Overlay	(6000,0015)	1	Number of frames in the overlay
	Image Frame Origin	(6000, 0051)	3	Set to 1
SOP Common	SOP Class UID	(0008,0016)	1	1.2.840.10008.5.1.4.1.1.6.1
	SOP Instance UID	(0008,0018)	1	created
	Specific Character Set	(0008,0005)	1C	From MWL or set to ISO_IR 100
	Instance Creation Date	(0008,0012)	3	created
	Instance Creation Time	(0008,0013)	3	created
Standard Extended SOP Class - Standard and Private Attributes				
Patient Demographic	Patient's Address	(0010,1040)	3	from MWL
	Military Rank	(0010,1080)	3	from MWL
Patient Medical	Medical Alerts	(0010,2000)	3	from MWL
	Contrast Allergies	(0010,2110)	3	from MWL
	Smoking Status	(0010,21A0)	3	from MWL
	Pregnancy Status	(0010,21C0)	3	from MWL
	Last Menstrual Date	(0010,21D0)	3	from MWL or input by user

Module	Attribute	Tag	Type	Notes
	Special Needs	(0038,0050)	3	from MWL
	Patient State	(0038,0500)	3	from MWL
Image Plane	Pixel Spacing	(0028,0030)	3	This attribute is not included in images that contain Doppler or M-Mode data, or images that contain more than one 2D tissue region.
Study Scheduling	Requesting Physician	(0032,1032)	3	from MWL
	Requesting Service	(0032,1033)	3	from MWL
	Requested Procedure Description	(0032,1060)	3	from MWL
	Requested Procedure Code Sequence	(0032,1064)	3	from MWL
	>Include 'Code Sequence Macro'		1C	
Study Classification	Study Comments	(0032,4000)	3	input by user
ABVS Standard Extended	View Name	(0008,2127)	3	ABVS scan location
	Spacing Between Slices	(0018,0088)	3	
	Pixel Spacing	(0028,0030)	3	
	Pixel Aspect Ratio	(0028,0034)	1C	
	Representative Frame Number	(0028,6010)	3	
	Anatomic Region Sequence	(0008,2218)	3	
	>Code Value	(0008,0100)	1	T-04000
	>Coding Scheme Designator	(0008,0102)	1	SNM3
	>Code Meaning	(0008,0104)	1	Breast
	>Anatomic Region Modifier Sequence	(0008,2220)	3	
	>>Code Value	(0008,0100)	1	e.g., G-A115
	>>Coding Scheme Designator	(0008,0102)	1	SRT
	>>Code Meaning	(0008,0104)	1	e.g., Inferior
ABVS Private	Private Creator	(0021,0010)	1	SIEMENS Ultrasound S2000
	Release Version	(0021,0011)	3	ABVS1.0
	Nipple Position	(0021,1000)	3	Nipple position marker
	ABVS Clip Derived From Volume	(0021,1001)	3	Derived from ABVS 3D dataset
S2000 Private Attributes	Private Creator	(0019,00xx)	3	SIEMENS MED SMS USG S2000
	Private Creator Version	(0019,xx00)	3	1.1
	B-Mode Tint Type	(0019,xx2A)	3	0 = Grayscale , 1 = Color Balance , 2 = Pseudo Color
	B-Mode Tint Index	(0019,xx2D)	3	
	Image Flag	(0019,xx3A)	3	1 = flagged image, 0 (or not present) = not flagged
	Doppler Tint Type	(0019,xx6C)	3	0 = Grayscale , 1 = Color Balance , 2 = Pseudo Color
	M-Mode Tint Type	(0019,xx86)	3	0 = Grayscale , 1 = Color Balance , 2 = Pseudo Color

Module	Attribute	Tag	Type	Notes
MedCom Private Attributes †	MedCom Header Info - Private Creator	(0029,0010)	3	SIEMENS MEDCOM HEADER
	MedCom Header data	(0029,1020)	3	
	PMTF Information 1	(0029,1031)	3	
	PMTF Information 2	(0029,1032)	3	
	PMTF Information 3	(0029,1033)	3	
	PMTF Information 4	(0029,1034)	3	DB TO DICOM
	MedCom OOG - Private Creator	(0029,0011)	3	SIEMENS MEDCOM OOG
	MedCom OOG Type	(0029,1108)	3	MEDCOM OOG 2
	MedCom OOG Version	(0029,1109)	3	VE31F
	MedCom OOG Info	(0029,1110)	3	

† The ACUSON S2000 system uses syngo MedCom private elements. These private elements are used between the ACUSON S2000 AE and other syngo based AE's to describe Object Oriented Graphics (OOG). This module is used when object graphics are drawn on the image and stores the properties of the graphics objects (Line, Circle, Rectangle, Arrows, etc.). The graphics objects will remain re-animate-able even if such an image is transferred via the DICOM C-Store SOP Class. The graphics objects may also be stored in a single image overlay plane for compatibility with other products which don't support the OOG module. These private elements should be discarded by non-syngo based DICOM application entities when modifying the image overlay data.

This table denotes the attributes included in the Ultrasound Multi-Frame Image IOD as implemented on the ACUSON S2000 system, when used for 3D volumetric data sets. Attributes not listed are not used. Each frame represents a single slice from the 3D volume.

Table 15: US-MF Image IOD Attributes - 3D Volumetric Data

Module	Attribute	Tag	Type	Notes
Patient	Patient's Name	(0010,0010)	2	from MWL or user input
	Patient ID	(0010,0020)	2	from MWL or user input
	Patient's Birth Date	(0010,0030)	2	from MWL or user input
	Patient's Sex	(0010,0040)	2	from MWL or user input
	Other Patient IDs	(0010,1000)	3	from MWL
	Other Patient Names	(0010,1001)	3	from MWL
	Ethnic Group	(0010,2160)	3	from MWL
	Patient Comments	(0010,4000)	3	from MWL
General Study	Study Instance UID	(0020,000D)	1	from MWL or created
	Study Date	(0008,0020)	2	created
	Study Time	(0008,0030)	2	created
	Referring Physician's Name	(0008,0090)	2	from MWL or user input
	Study ID	(0020,0010)	2	created
	Accession Number	(0008,0050)	2	from MWL or user input
	Study Description	(0008,1030)	3	from MWL (requested procedure description or scheduled procedure step description) or user selected
	Referenced Study Sequence	(0008,1110)	3	from MWL or zero length
	>Referenced SOP Class UID	(0008,1150)	1C	
	>Referenced SOP Instance UID	(0008,1155)	1C	
	Procedure Code Sequence	(0008,1032)	3	
	> Include 'Code Sequence Macro'		1C	

Module	Attribute	Tag	Type	Notes
Patient Study	Admitting Diagnoses Description	(0008,1080)	3	from MWL or user input
	Patient's Age	(0010,1010)	3	calculated or user input
	Patient's Size	(0010,1020)	3	from MWL or user input
	Patient's Weight	(0010,1030)	3	from MWL or user input
	Additional Patient's History	(0010,21B0)	3	from MWL or user input
General Series	Modality	(0008,0060)	1	Set to US
	Series Instance UID	(0020,000E)	1	created
	Series Number	(0020,0011)	2	Set to 1...n
	Laterality	(0020,0060)	2C	Set to zero length
	Series Date	(0008,0021)	3	created
	Series Time	(0008,0031)	3	created
	Performing Physicians' Name	(0008,1050)	3	from MWL or user input
	Protocol Name	(0018,1030)	3	user input
	Series Description	(0008,103E)	3	user input
	Operators' Name	(0008,1070)	3	user input
	Referenced Study Component Sequence	(0008,1111)	3	created (if MPPS is supported)
	>Referenced SOP Class UID	(0008,1150)	1C	1.2.840.10008.3.1.2.3.3 (MPPS SOP Class)
	>Referenced SOP Instance UID	(0008,1155)	1C	MPPS SOP Instance UID
	Body Part Examined	(0018,0015)	3	user selected
	Request Attributes Sequence	(0040,0275)	3	from MWL or zero length
	>Requested Procedure ID	(0040,1001)	1C	
	>Scheduled Procedure Step ID	(0040,0009)	1C	
	>Scheduled Procedure Step Description	(0040,0007)	3	
	>Scheduled Protocol Code Sequence	(0040,0008)	3	
	>>Include 'Code Sequence Macro'		1C	
	Performed Procedure Step ID	(0040,0253)	3	from MWL Scheduled Procedure Step ID or created
	Performed Procedure Step Start Date	(0040,0244)	3	created
	Performed Procedure Step Start Time	(0040,0245)	3	created
	Performed Procedure Step Description	(0040,0254)	3	from MWL Scheduled Procedure Step Description or user input
	Performed Protocol Code Sequence	(0040,0260)	3	
	>Include 'Code Sequence Macro'		1C	
	Comments on the Performed Procedure Step	(0040,0280)	3	from MPPS dialog
General Equipment	Manufacturer	(0008,0070)	2	Set to "SIEMENS"
	Institution Name	(0008,0080)	3	from MWL or user selected
	Institution Address	(0008,0081)	3	from MWL
	Station Name	(0008,1010)	3	Set to the computer's host name
	Manufacturer's Model Name	(0008,1090)	3	Set to "S2000"
	Device Serial Number	(0018,1000)	3	Set to system serial number
	Software Versions	(0018,1020)	3	Set to "VB20"

Module	Attribute	Tag	Type	Notes
General Image	Instance Number	(0020,0013)	2	1...n
	Patient Orientation	(0020,0020)	2C	Set to zero length
	Acquisition Date	(0008,0022)	2	created
	Acquisition Time	(0008,0032)	3	created
	Acquisition Datetime	(0008,002A)	3	created
	Derivation Description	(0008,2111)	3	US_3D_VOLUME_DATA
	Image Comments	(0020,4000)	3	user input
	Lossy Image Compression Ratio	(0028,2112)	3	Only used with JPEG Lossy compression
Image Pixel	Rows	(0028,0010)	1	Set to 600
	Columns	(0028,0011)	1	Set to 800
	Pixel Data	(7FE0,0010)	1	
US Image Module	Samples Per Pixel	(0028,0002)	1	Set to 1
	Photometric Interpretation	(0028,0004)	1	See Table 11.
	Bits Allocated	(0028,0100)	1	Set to 8
	Bits Stored	(0028,0101)	1	Set to 8
	High Bit	(0028,0102)	1	Set to 7
	Ultrasound Color Data Present	(0028,0014)	1C	Set to 1 if Color Flow or Pseudo Color is present in the image
	Frame Increment Pointer	(0028,0009)	1C	Set to 0018,1063 (Frame Time attribute)
	Pixel Representation	(0028,0103)	1	Set to 0 (unsigned integer)
	Image Type	(0008,0008)	2	DERIVED / PRIMARY
	Lossy Image Compression	(0028,2110)	1C	= 01 if JPEG lossy compressed
	Transducer Data	(0018,5010)	3	Probe name (e.g. C5-2)
SOP Common	SOP Class UID	(0008,0016)	1	1.2.840.10008.5.1.4.1.1.3.1
	SOP Instance UID	(0008,0018)	1	created
	Specific Character Set	(0008,0005)	1C	From MWL or set to ISO_IR 100
	Instance Creation Date	(0008,0012)	3	created
	Instance Creation Time	(0008,0013)	3	created
Cine	Frame Time	(0018,1063)	1C	created
Multi-Frame	Number of Frames	(0028,0008)	1	created
Frame Pointers	Representative Frame Number	(0028,6010)	3	Frame number used as pictorial representation of the 3D Volume.
Standard Extended SOP Class - Standard and Private Attributes				
Patient Demographic	Patient's Address	(0010,1040)	3	from MWL
	Military Rank	(0010,1080)	3	from MWL
Patient Medical	Medical Alerts	(0010,2000)	3	from MWL
	Contrast Allergies	(0010,2110)	3	from MWL
	Smoking Status	(0010,21A0)	3	from MWL
	Pregnancy Status	(0010,21C0)	3	from MWL
	Last Menstrual Date	(0010,21D0)	3	from MWL or input by user
	Special Needs	(0038,0050)	3	from MWL
	Patient State	(0038,0500)	3	from MWL

Module	Attribute	Tag	Type	Notes
Study Scheduling	Requesting Physician	(0032,1032)	3	from MWL
	Requesting Service	(0032,1033)	3	from MWL
	Requested Procedure Description	(0032,1060)	3	from MWL
	Requested Procedure Code Sequence	(0032,1064)	3	from MWL
	>Include 'Code Sequence Macro'		1C	
Study Classification	Study Comments	(0032,4000)	3	input by user
S2000 Private Attributes	Private Creator	(0039,0010)	1	SIEMENS MED SMS USG S2000 3D VOLUME
	Release Version	(0039,1000)	3	3.0.3
	VolumeAcquisitionDuration	(0039,1003)	3	
	VolumeRawDataType	(0039,1004)	3	Data Type (Cartesian/Scan-Converted/PreScanConverted Format
	ScanType	(0039,1005)	3	
	ZlateralMin	(0039,1006)	3	Minimum span along the depth (wobble min.)
	ZlateralSpan	(0039,1007)	3	Span along the depth (wobble span)
	ZRadiusOfCurvature	(0039,1008)	3	Radius of curvature, in (wobble)
	WobbleCorrection	(0039,1009)	3	Wobbling shear correction factor (0.0 to 1.0)
	ScaleAlongWidth	(0039,1010)	3	Width scaling mm/pixel
	ScaleAlongHeight	(0039,1011)	3	Height scaling mm/pixel
	ScaleAlongDepth	(0039,1012)	3	Depth scaling mm/pixel
	BufferSize	(0039,1013)	3	
	AcquisitionRate	(0039,1014)	3	Time required to acquire one volume
	DepthMinCm	(0039,1015)	3	The min/start depth for the BImage
	IsLeftRightFlippedEn	(0039,1016)	3	Whether the acquired images were Left/Right flipped
	IsUpDownFlippedEn	(0039,1017)	3	Whether the acquired images were up/down flipped
	IsVolumeGeomAccurate	(0039,1018)	3	Is the volume passed is geometrically accurate (In order to display ruler)
	BByteMaskOffset	(0039,1019)	3	Bytemasks is the offset fro Mask data which is used for space leaping optimization in renderer
	BByteMaskSize	(0039,1020)	3	Size of the byte mask data
	DepthMaxCm	(0039,1021)	3	The max/end depth for the BImage
	AcqPlaneRotationDeg	(0039,1022)	3	Angle by which the volume is to be rotated around, normal to the Aquisition plane (Z axis) (in degrees)
	BeamAxialSpan	(0039,1023)	3	beam span, in mm
	BeamLateralMin	(0039,1024)	3	Min lateral angle

Module	Attribute	Tag	Type	Notes
S2000 Private Attributes	BeamLateralSpan	(0039,1025)	3	Angular span
	BeamAxialMin	(0039,1026)	3	Axial min or radius of curvature in 2d
	NumDisplaySamples	(0039,1027)	3	Number of actual samples along each beam
	DVolumeWidth	(0039,1028)	3	Volume Width of the Power/Doppler Volume
	DVolumeDepth	(0039,1029)	3	Volume Depth of the Power/Doppler Volume
	DVolumeHeight	(0039,1030)	3	Volume Height of the Power/Doppler Volume
	DVolumePosX	(0039,1031)	3	
	DVolumePosY	(0039,1032)	3	
	DVolumePosZ	(0039,1033	3	
	DBeamAxialMin	(0039,1034)	3	Axial min or radius of curvature in 2d for Power/Doppler
	DBeamAxialSpan	(0039,1035)	3	
	DBeamLateralMin	(0039,1036)	3	Min lateral angle for Power/Doppler
	DBeamLateralSpan	(0039,1037)	3	Angular span from Power/Doppler
	NumOfVolumesInSequence	(0039,1038)	3	Number Of Volumes In Sequence
	DByteMaskOffset	(0039,1039)	3	Bytemasks is the offset for the mask data which is used for space leaping optimization in renderer when in Power/Doppler
	DByteMaskSize	(0039,1040)	3	Size of the byte mask data when in Power/Doppler
S2000 Private Attributes - 3D Bookmark Data				
S2000 Private Attributes	PrivateCreatorVersionOfBookmark	(0039,1050)	3	3.6.0
	BCutPlaneEnable	(0039,1051)	3	Cut-plane volume rendering for B data
	BMprColorMapIndex	(0039,1052)	3	Index of the tint colormap for MPR B data
	BMprDynamicRangeDb	(0039,1053)	3	dB value of dynamic range curve for MPR B data
	BMprGrayMapIndex	(0039,1054)	3	Index of the image enhancement LUT for the MPR B data
	BVolumeRenderMode	(0039,1055)	3	Volume rendering mode for B data
	BVrBrightness	(0039,1056)	3	Brightness value for the volume rendered B data
	BVrContrast	(0039,1057)	3	Contrast value for the volume rendered B data
	BVrColorMapIndex	(0039,1058)	3	Index of the tint colormap for the volume rendered B data

Module	Attribute	Tag	Type	Notes
S2000 Private Attributes	BVrDynamicRangeDb	(0039,1059)	3	dB value of dynamic range curve for the volume rendered B data
	BVrGrayMapIndex	(0039,105a)	3	Index of the image enhancement LUT for the volume rendered B data
	BVrOpacity	(0039,105b)	3	Opacity percentage of the opacity curve used for the volume rendered B data
	BVrThresholdHigh	(0039,105c)	3	High threshold of the opacity curve used for the volume rendered B data
	BVrThresholdLow	(0039,105d)	3	Low threshold of the opacity curve used for the volume rendered B data
	BPreProcessFilterMix	(0039,105e)	3	Mix percentage used for mixing filtered data for the volume rendered B data
	CCutPlaneEnable	(0039,105f)	3	Cut-plane volume rendering for B data
	CFrontClipMode	(0039,1060)	3	Flag indicating whether Niche and Parallel Cut edit operation will clip power data.
	CMprColorMapIndex	(0039,1061)	3	Index of the tint colormap for MPR power data
	CMprColorFlowPriorityIndex	(0039,1062)	3	Threshold representing amount of power data cut from the MPR power data
	CVolumeRenderMode	(0039,1063)	3	Volume rendering mode for power data
	CVrColorMapIndex	(0039,1064)	3	Index of the tint colormap for the volume rendered power data
	CVrColorFlowPriorityIndex	(0039,1065)	3	Threshold representing amount of power data cut from the volume rendered power data
	CVrOpacity	(0039,1066)	3	Opacity percentage of the opacity curve used for the volume rendered power data
	CVrThresholdHigh	(0039,1067)	3	High threshold of the opacity curve used for the volume rendered power data
	CVrThresholdLow	(0039,1068)	3	Low threshold of the opacity curve used for the volume rendered power data
	VoiMode	(0039,1069)	3	Flag indicating whether VOI is on or off
	VoiRotationOffsetDeg	(0039,106a)	3	Fixed rotation applied to VOI
	VoiSizeRatioX	(0039,106b)	3	Width of VOI in relative units
	VoiSizeRatioY	(0039,106c)	3	Length of VOI in relative units
	VoiSizeRatioZ	(0039,106d)	3	Height of VOI in relative units
	VoiSyncPlane	(0039,106e)	3	Plane synced to the VOI
	VoiViewMode	(0039,106f)	3	Type indicating whether the rendering is synced to the front or back of the VOI

Module	Attribute	Tag	Type	Notes
S2000 Private Attributes	VrOrientationA	(0039,1070)	3	Matrix representing the oritentation of the volume rendered image
	MprOrientationA	(0039,1071)	3	Matrix representing the oritentation of the MPRs
	VrOffsetVector	(0039,1072	3	Vector representing the vertical and horizontal offset of the volume on the display
	BlendingRatio	(0039,1073)	3	Value indicating the amount of blending between B and power data when blend is on
	FusionBlendMode	(0039,1074)	3	Mode for fusing in one display power and B volume rendered data
	QualityFactor	(0039,1075)	3	Factor determining the volume rendering quality
	RendererType	(0039,1076)	3	Type of the rendererer engine used
	SliceMode	(0039,1077)	3	Mode for displaying the textured map MPRs in the 3D quadrant
	ActiveQuad	(0039,1078)	3	Value indicating which quadrant in the display is active
	ScreenMode	(0039,1079)	3	Value indicating which screen layout is applied
	CutPlaneSide	(0039,107a)	3	Value indicating which half space of the cut-plane is used for volume rendering
	WireframeMode	(0039,107b)	3	Flag indicating whether wireframe around rendered data is on or off
	CrossmarkMode	(0039,107c)	3	Flag indicating whether crossmark is shown on the display
	MprDisplayType	(0039,107d)	3	Value indicating whether B or power or B+power data are displayed in the MPRs
	VolumeDisplayType	(0039,107e)	3	Value indicating whether B or power or B+power data are displayed in the volume rendered image
	LastReset	(0039,107f)	3	Value indicating the last reset
	LastNonFullScreenMode	(0039,1080)	3	Value indicating the last active quadrant before entering full screen
	MprToolIndex	(0039,1081)	3	Index indicating which tool (rotation, pan, resizing) is used on the MPRs
	VoiToolIndex	(0039,1082)	3	Index indicating which tool (rotation, pan, resizing) is used on the volume rendered image when VOI is on
	ToolLoopMode	(0039,1083)	3	Value indicating in which loop
	VolumeArbMode	(0039,1084)	3	Index indicating whether volume or MPR rotation is active on the 3D display window

Module	Attribute	Tag	Type	Notes
S2000 Private Attributes	MprZoomEn	(0039,1085)	3	Flag indicating whether zoom is enabled in the MPR
	IsVolumeZoomEn	(0039,1086)	3	Flag indicating whether zoom is enabled in the rendered volume
	ZoomLevelMpr	(0039,1087)	3	Value indicating the amount of zoom (in relative units) applied in the MPR
	ZoomLevelVolume	(0039,1088)	3	Value indicating the amount of zoom (in relative units) applied in the rendered volume
	IsAutoRotateEn	(0039,1089)	3	Flag indicating whether animation is enabled
	AutoRotateAxis	(0039,108a)	3	Value indicating the axis of rotation for the animation
	AutoRotateRangeIndex	(0039,108b)	3	Value indicating the total angle range for the animation
	AutoRotateSpeedIndex	(0039,108c)	3	Value indicating the speed (in relative units) for the animation
	CVrBrightness	(0039,108d)	3	Brightness value for the volume rendered power data
	CFlowStateIndex	(0039,108e)	3	Index for flow state of power data (low, medium, high)
	BSubmodeIndex	(0039,108f)	3	Index for indicating the B submode (THI, B, etc...)
	CSubmodeIndex	(0039,1090)	3	Index for indicating the C submode
	DICOMAttrNameCutPlane	(0039,1091	3	Quadrant used to cut volume when colume cut enabled
	BookmarkChunkId	(0039,1092)	3	Index of Bookmark
	SequenceMinChunkId	(0039,1093)	3	Begin range index of volume sequence
	SequenceMaxChunkId	(0039,1094)	3	End range index of volume sequence
	VolumeRateHz	(0039,1095)	3	Rate at which volumes are rendered
	VoiPositionOffsetX	(0039,109a)	3	Offset in the x dimension between the center of the VOI and center of volume in relative units
	VoiPositionOffsetY	(0039,109b)	3	Offset in the y dimension between the center of the VOI and center of volume in relative units
	VoiPositionOffsetZ	(0039,109c)	3	Offset in the z dimension between the center of the VOI and center of volume in relative units
	VrToolIndex	(0039,109d)	3	Index indicating which tool (rotation, pan, resizing) is used on the volume rendered image
	ShadingPercent	(0039,109e)	3	Value indicating the amount of shading in the volume rendered image

Module	Attribute	Tag	Type	Notes
S2000 Private Attributes	VolumeType	(0039,109f)	3	Value indicating the type of volume (B or B and Power)
	VolumeRateHz	(0039,1095)	3	Rate at which volumes are rendered
	DICOMAttrNameVrQuadDisplayType	(0039,10a0)	3	The type of display to show in the volume quadrant
	DICOMAttrNameMprCenterLocation	(0039,10a1)	3	Offset location of slice centerpoint with respect to quadrant center
	DICOMAttrNameSliceMode	(0039,1077)	3	Value indicating that system in multislice mode
	DICOMAttrNameSliceRangeType	(0039,10e0)	3	Value indicating type of slice mode (horizontal/vertical)
	DICOMAttrNameSliceMPRPlane	(0039,10e1)	3	Value indicating selected MPR for slice mode (Acquisition/Elevation/Coronal)
	DICOMAttrNameSliceLayout	(0039,10e2)	3	Selected layout for slice mode (2x2, 3x3, 4x4, 6x6)
	DICOMAttrNameSliceSpacing	(0039,10e3)	3	Value indicates the spacing between MPR slices
	DICOMAttrNameThinVrMode	(0039,10e4)	3	Value indicating that system in ThinVr mode
	DICOMAttrNameThinVrThickness	(0039,10e5)	3	Selected thickness value
	DICOMAttrNameVoiPivotX	(0039,10e6)	3	Curved TOP VOI pivot x
	DICOMAttrNameVoiPivotY	(0039,10e7)	3	Curved TOP VOI pivot y
	DICOMAttrNameVoiPivotZ	(0039,10e8)	3	Curved TOP VOI pivot z
	DICOMAttrNameCTopVoiQuad	(0039,10e9)	3	Curved TOP VOI Quad
	DICOMAttrNameIsAbvsVolume	(0039,10ee)	3	
	DICOMAttrNameIsThinVrAbvsView En	(0039,10ef)	3	
	DICOMAttrNameNipplePlacementTool Position	(0039,10f0)	3	
	DICOMAttrNameAbsScanChirality	(0039,10f1)	3	
	DICOMAttrNameAbsScanDirection	(0039,10f2)	3	
	DICOMAttrNameAbsScanLocation	(0039,10f3)	3	
	DICOMAttrNameTsiDepthMm	(0039,10f4)	3	
	DICOMAttrNameVolumeLabel	(0039,10f0)	3	

Table 16: Comprehensive SR Image IOD Modules

Entity Name	Module Name	Reference
Patient	Patient	See Table 12
Study	General Study	See Table 12
	Patient Study	See Table 12
Series	SR Document Series	See Table 17
Equipment	General Equipment	See Table 12, except for (0018,1020)
	Software Versions (0018,1020)	Set to “VB10E”
Document	SR Document General	See Table 18
	SR Document Content	See Table 19
	SOP Common	See Table 12

Table 17: SR Document Series Module

Attribute	Tag	Type	Notes
Modality	(0008,0060)	1	Defined term “SR” used
Series Instance UID	(0020,000E)	1	Uniquely generated by the S2000
Series Number	(0020,0011)	1	Internally generated; incremented for each new exam within a study
Reference Performed Procedure Step Sequence	(0008,1111)	2	
>Referenced SOP Class UID	(0008,1150)	1C	
>Reference SOP Instance UID	(0008,1155)	1C	

Table 18: SR Document General Module

Attribute	Tag	Type	Notes
Instance Number	(0020,0013)	1	Internally generated incremented for each new SR document within a study
Completion Flag	(0040,A491)	1	Defined Term “PARTIAL” used
Verification Flag	(0040,A493)	1	Defined Term “UNVERIFIED” used
Content Date	(0008,0023)	1	Date of creation
Content Time	(0008,0033)	1	Time of creation
Predecessor Documents Sequence	(0040,A360)	1C	Included if previous SR instances for the study were created and exported.
>Include ‘SOP Instance Reference Macro’		1C	
Referenced Request Sequence	(0040,A370)	1C	Filled in if the exam is based on a Worklist entry
>Study Instance UID	(0020,000D)	1	Taken from the Study Instance UID in the General Study Module
>Accession Number	(0008,0050)	2	From Worklist or Patient Registration
>Requested Procedure ID	(0040,1001)	2	Taken from Worklist if available
>Requested Procedure Description	(0032,1060)	2	Taken from Worklist if available
Pertinent Other Evidence Sequence	(0040,A385)	1	
>Include ‘SOP Instance Reference Macro’		1C	

5.2.2.2 SR Document Content Module

The SR Document Content Module is described in the following table and in the appendices.

Table 19: SR Document Content Module Attributes

Attribute	Tag	Type	Notes
Content Template Sequence	(0040,A504)	1C	Template ID
>Template Identification Macro			
Relationship Type	(0040,A010)	1	CONTAINS
Value Type	(0040,A040)	1	CONTAINER
Continuity of Content	(0040,A050)	1C	SEPARATE

Attribute	Tag	Type	Notes
Concept Name Code Sequence	(0040,A043)	1C	See Appendix for "OB Gyn Ultrasound Procedure Report", "Vascular Ultrasound Procedure Report", or "Adult Echocardiography Procedure Report"
> 'Code Sequence Macro'			
Content Sequence	(0040,A730)	1C	See Appendix for "OB Gyn Ultrasound Procedure Report", "Vascular Ultrasound Procedure Report" , or "Adult Echocardiography Procedure Report"
>Relationship Type	(0040,A010)	1	CONTAINS

5.2.2.3 Content Template

The ACUSON S2000 Ultrasound System supports the following root Templates for SR SOP Instances created, processed, or displayed by the ACUSON S2000.

Table 20: Root Templates for SR SOP Instances

SOP Class	Template ID	Template Description	Use
Comprehensive SR	5000	OB-GYN Ultrasound Procedure Report	Create
Comprehensive SR	5100	Vascular Ultrasound Report	Create
Comprehensive SR	5200	Adult Echocardiography Procedure Report	Create

5.2.2.3.1 Error Handling

The following table indicates the possible response status codes, which a SCP may return following the SCU's C-STORE-RSP command. Only those status responses that indicate some form of error condition are presented to the user.

A successful C-STORE operation will allow the AE to continue to the next action desired by the user.

Table 21: C-STORE Status Responses

Service Status	Futher Meaning	Protocol Codes	Related Fields
Refused	Out of resources.	A7xx	None
Error	Data set does not match SOP Class. Cannot understand.	A9xx Cxxx	None
Warning	Coercion of data Elements. Data set does not match SOP Class. Elements discarded.	B000 B007 B006	None
Success		0000	None

5.3 Storage Commitment AE Specification

The ACUSON S2000 Storage Commitment AE provides Standard Conformance to the following DICOM SOP Classes as an SCU.

Table 22: Standard SOP Classes as Storage Commitment Push Model

SOP Class Name	SOP Class UID
Storage Commitment Push Model	1.2.840.10008.1.20.1

5.3.1 Association Establishment Policies

5.3.1.1 General

The configuration of ACUSON S2000 system Storage Commitment AE defines the Application Entity Titles, the port numbers, the host names and IP addresses.

5.3.1.2 Number of Associations

The ACUSON S2000 system Storage Commitment AE initiates several associations at a time, one for each storage commitment request being processed.

5.3.1.3 Asynchronous Nature

The ACUSON S2000 system Storage Commitment AE does not support asynchronous communication (multiple outstanding transactions over a single association).

5.3.1.4 Implementation Identifying Information

The ACUSON S2000 system Storage Commitment AE provides a single Implementation Class UID of

- "1.3.12.2.1107.5.9.20000101"

and an Implementation Version Name of

- "SIEMENS_SWFSYNGO".

5.3.2 Association Initiation by Real-World Activity

The ACUSON S2000 system Storage Commitment AE initiates an association when acting as SCU, in order to send a request for storage commitment.

5.3.2.1 Real-World Activity - Send Storage Commitment Request

5.3.2.1.1 Associated Real-World Activity - Send Storage Commitment Request

The user has sent (or archived) images to another DICOM node, which is configured as storage commitment SCP. The ACUSON S2000 system will automatically attempt to send a storage commitment request for these images.

5.3.2.1.2 Proposed Presentation Contexts - Send Storage Commitment Request

The ACUSON S2000 system Storage Commitment AE will propose Presentation Contexts as shown in the following table:

Table 23: Initiation Presentation Context Storage Commitment Request

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1	Implicit VR Little Endian Explicit VR Big Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCU	None

5.3.2.1.3 SOP Specific Conformance Statement - Send Storage Commitment Request

The SCU sends the N-ACTION-RQ message and waits for the N-ACTION-RSP. After receiving this, the transaction is marked as “waiting”.

When configured to automatically transfer images “During the Exam”, a separate Storage Commitment Request is made for each image transferred to a Storage SCP that is configured for storage commitment.

Depending on a configuration value, the association will be closed or kept open. In the first case, there is another configurable value giving the number of minutes (by default 60) to wait for the corresponding N-EVENT-REPORT-RQ. In the second case, this time is the (also configurable) time-out for the association. For both cases, if the N_EVENT_REPORT-RQ does not arrive during the configured time, the transaction will be marked as failed.

Storage Commitment is supported for all the Storage SOP class UIDs as listed in Table 9: . The Referenced Study Component Sequence is not supported.

Storage Media File-Set ID and UID Attributes will not be supported in the N-ACTION primitive invoked by the Storage Commitment SCU.

5.3.3 Association Acceptance Policy

The ACUSON S2000 system Storage Commitment AE accepts an association when acting as SCU if configured to receive N-EVENT-REPORT on a separate association.

Note: The ACUSON S2000 system may be configured to accept results in the same or separate association as the Storage Commitment Request.

5.3.3.1 Real World Activity - Receive Storage Commitment Response

5.3.3.1.1 Associated Real World Activity - Receive Storage Commitment Response

When configured to receive results on a separate association, the ACUSON S2000 system Storage Commitment AE sends a Storage Commitment Request and then closes the association. The ACUSON S2000 system Storage Commitment AE will then accept an association request from the Storage Commitment SCP that wants to send Storage Commitment results.

5.3.3.1.2 Accepted Presentation Contexts - Receive Storage Commitment Response

The ACUSON S2000 system Storage Commitment AE will accept Presentation Contexts as shown in the following table:

Table 24: Presentation Context accepted for Storage Commitment

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1	Implicit VR Little Endian Explicit VR Big Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCU	None

5.3.3.1.3 SOP Specific Conformance Statement - Receive Storage Commitment Response

If the N_EVENT_REPORT received has the status of “Complete - Failure Exists”, the transaction is marked as failed, otherwise the transaction is marked as “completed”. In both cases, a message is shown to the user. The committed images are marked in the local database.

The ACUSON S2000 system automatically re-sends images and Storage Commitment Requests for failed storage commitment results with the following failure codes:

- 0112H - No such object instance.
- 0131H - Duplicate transaction UID.

The ACUSON S2000 system does not re-send images from a failed storage commitment result with the following failure codes:

- 0110H - Processing failure
- 0213H - Resource limitation
- 0122H - Referenced SOP Class not supported
- 0119H - Class / Instance conflict

The storage commitment status is displayed at the image level in the Patient Browser. Statuses are:

- S?/A? = Send/Archive Storage Commitment Waiting for result.
- Sf/Af = Send/Archive Storage Commitment Failed.
- SC/AC = Send/Archive Storage Commitment Succeeded.

When all images in a series are successfully committed, a corresponding “S” or “A” is displayed at the series level of the Patient Browser.

When all series in a study are successfully committed, a corresponding “S” or “A” is displayed at the study level of the Patient Browser.

5.4 Print AE Specification

The print management SCU invokes print management DIMSE services to transfer images from the local AE to the remote SCP AE to print the images with the defined film format and size on a selected network DICOM hardcopy printer. See DICOM part 4 annex H.

The ACUSON S2000 system system provides Standard Conformance to the following DICOM V3.0 Basic Grayscale Print Management Meta SOP Class, Basic Color Print Management Meta SOP Class and the optional Print Job SOP Class as an SCU.

Table 25: Basic Gray Scale Print Management Meta SOP Classes

SOP Class Name	SOP Class UID	Usage
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Standard
Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Standard
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Standard
Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4	Standard
Printer SOP Class	1.2.840.10008.5.1.1.16	Standard
Print Job SOP Class	1.2.840.10008.5.1.1.14	Standard

Table 26: Basic Color Print Management Meta SOP Classes

SOP Class Name	SOP Class UID	Usage
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	Standard
Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Standard
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Standard
Basic Color Image Box SOP Class	1.2.840.10008.5.1.1.4.1	Standard
Printer SOP Class	1.2.840.10008.5.1.1.16	Standard
Print Job SOP Class	1.2.840.10008.5.1.1.14	Standard

All mandatory elements of these classes are supported.

5.4.1 Association Establishment Policies

5.4.1.1 General

The configuration of the ACUSON S2000 system DICOM print management application defines the Application Entity Titles, the port numbers, the host names and IP addresses.

5.4.1.2 Number of Associations

The ACUSON S2000 system DICOM application initiates one/several association(s) at a time, one for each transfer request being processed.

5.4.1.3 Asynchronous Nature

The ACUSON S2000 system DICOM software does not support asynchronous communication (multiple outstanding transactions over a single association).

5.4.1.4 Implementation Identifying Information

The ACUSON S2000 system DICOM software provides a single Implementation Class UID of

- “1.3.12.2.1107.5.9.20000101”

and an Implementation Version Name of

- “SIEMENS_ SWFSYNGO”.

5.4.2 Association Initiation by Real-World Activity

The Print Management SCU and SCP establish an association by using the DICOM association services. During association establishment the Print Management application entities negotiate the supported SOP classes to exchange the capabilities of the SCU and the SCP. If the SCU supports only mandatory SOP classes, the negotiation of optional capabilities is not necessary.

5.4.2.1 Real World Activity - Print

The system has three possible print configurations in the “Print/Store” preset page.

When “during exam” is selected, an association is opened with the destination printer after the last image on the film sheet is acquired and is closed at the end of film sheet transfer.

If transfer at “end of exam” has been configured, an association is opened with the destination printer(s) when the exam is completed (I.e. a new Patient / Study is registered or End Exam is performed). All film sheets are then transferred. An association is opened for each of the film sheets transferred.

When auto transfer is “disabled” the system copies images onto the film sheet, but auto transfer does not occur.

Printing of Multi-frame Images is not supported.

5.4.2.1.1 Associated Real World Activities - Print

An association is established when the user initiates an “Expose Film Job” operation from the Filming UI screen. Individual images or entire exams can be transferred to the selected DICOM Print device. The association is opened when the first sheet of each selected exam is transferred and closed when the last sheet transfer is completed.

5.4.2.1.2 Proposed Presentation Contexts

Table 27: Presentation Context Table

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Explicit VR Little Endian Explicit VR Big Endian Implicit VR Little Endian	1.2.840.10008.1.2.1 1.2.840.10008.1.2.2 1.2.840.10008.1.2	SCU	None
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	Explicit VR Little Endian Explicit VR Big Endian Implicit VR Little Endian	1.2.840.10008.1.2.1 1.2.840.10008.1.2.2 1.2.840.10008.1.2	SCU	None
Basic Film Session SOP Class	1.2.840.10008.5.1.1	Explicit VR Little Endian Explicit VR Big Endian Implicit VR Little Endian	1.2.840.10008.1.2.1 1.2.840.10008.1.2.2 1.2.840.10008.1.2	SCU	None
Basic Film Box SOP Class	1.2.840.10008.5.1.2	Explicit VR Little Endian Explicit VR Big Endian Implicit VR Little Endian	1.2.840.10008.1.2.1 1.2.840.10008.1.2.2 1.2.840.10008.1.2	SCU	None
Basic Color Image Box SOP Class	1.2.840.10008.5.1.1.4.1	Explicit VR Little Endian Explicit VR Big Endian Implicit VR Little Endian	1.2.840.10008.1.2.1 1.2.840.10008.1.2.2 1.2.840.10008.1.2	SCU	None
Printer SOP Class	1.2.840.10008.5.1.1.16	Explicit VR Little Endian Explicit VR Big Endian Implicit VR Little Endian	1.2.840.10008.1.2.1 1.2.840.10008.1.2.2 1.2.840.10008.1.2	SCU	None
Print Job SOP Class	1.2.840.10008.5.1.1.14	Explicit VR Little Endian Explicit VR Big Endian Implicit VR Little Endian	1.2.840.10008.1.2.1 1.2.840.10008.1.2.2 1.2.840.10008.1.2	SCU	None

5.4.2.1.2.1 SOP Specific Conformance Statement

The Print AE provides standard conformance to the Basic Grayscale Print Management Meta SOP Class and Basic Color Print Management Meta SOP Class as an SCU.

The application uses a setting platform to define the properties of the connected DICOM SCP. For example,

- Maximum number of print jobs in the queue.
- Maximum number of print copies.
- Supported film sizes of the connected DICOM SCP.
- Supported film formats of the DICOM SCP.
- Lookup table definition.

5.4.2.1.2.1.1 SOP Specific Conformance to Basic Film Session SOP Class

The Basic Film Session information object definition describes all the user-defined parameters, which are common for all the films of a film session. The Basic Film Session refers to one or more Basic Film Boxes that are printed on one hardcopy printer.

The ACUSON S2000 system DICOM Print application supports the following DIMSE Service Elements for the Basic Film session SOP Class as SCU:

- N-CREATE
- N-DELETE

The Basic Film Session SOP Class SOP Class N_CREATE_RQ (SCU) uses the following attributes described in the following table:

Table 28: Basic Film Session N_CREATE_RQ attributes

Attribute Name	Attribute Tag	Usage	Range	Description
Number of Copies	(2000, 0010)	U	1 to 99	Number of requested film copies.
Medium Type	(2000, 0030)	U	PAPER CLEAR FILM BLUE FILM	Media used for hardcopy; may be further limited by print vendor/server
Film Destination	(2000, 0040)	U	MAGAZINE PROCESSOR	May be further limited by print vendor, and/or print server

The affected SOP Instance UID received in the N_CREATE_RSP message from the SCP will be saved internally and used for later requests like N_DELETE_RQ on the Basic Film Session SOP Class.

Table 29: Attributes of the N_DELETE_RQ - Basic Film Session SOP Class

Attribute Name	Attribute Tag	Source of Information
Requested SOP Instance UID	(0008,0018)	Affected SOP Instance UID of N_CREATE_RSP on Basic Film Session.

The N_DELETE_RQ on the Basic Film Session SOP Class is used to delete the complete Basic Film Session SOP Instance hierarchy.

The Basic Film Session SOP Class interprets the status codes in the following table from NCREATE_RSP, N_DELETE_RSP messages.

Table 30: Basic Film Session SOP Status

Service Status	Meaning	Protocol Code
Failure	Film Session SOP Instances hierarchy does not contain film box SOP instances	C600
	Unable to create print job, print queue is full	C601
	Image size is larger than images box size	C603
Warning	Memory allocation not supported	B600
	Film session printing is not supported	B601
	Film box does not contain image box (empty page)	B602
Success	Film belonging to the film session are accepted for printing	0000

5.4.2.1.2.1.2 SOP Specific Conformance to Basic Film Box SOP Class

The Basic Film Box Information object definition describes all the user-defined parameters of one film of the film session. The Basic Film Box information description defines the presentation parameters, which are common for all images on a given sheet of film. The Basic Film Box refers to one or more Image Boxes.

Supported as SCU are:

Table 31: Supported DIMSE Services for Basic Film Box SOP Class

Name	Usage	Description
N-Create	M	Creates the Film Box.
N-Delete	U	Deletes the Film Box. Issued after each film is printed.
N-Action	M	PRINT. Sent after each Film Box is filled, and at the end of the exam to force a print of partially filled Film Box.

The Basic Film Box SOP Class N_CREATE_RQ message uses the attributes in the following table. The used values for each attribute depend on how the DICOM printer is configured within the ACUSON S2000 product.

Table 32: Used Basic Film Box N_CREATE_RQ Attributes

Attribute Name	Attribute Tag	Usage	Range	Description
Image Display Format	(2010,0010)	M	STANDARD\C,R (with C number of columns and R number of rows)	Set to STANDARD\1,1 if "formatted by printer is selected" Otherwise dependent on configured printer
Film Orientation	(2010,0040)	M	PORTRAIT	Always set to PORTRAIT
Film Size ID	(2010,0050)	M	8INX10IN 10INX12IN 10INX14IN 11INX14IN 14INX14IN 14INX17IN 24CMX24CM 24CMX30CM	Valid film sheet sizes

Attribute Name	Attribute Tag	Usage	Range	Description
Magnification Type	(2010,0060)	M	REPLICATE BILINEAR CUBIC NONE	Used.
Min. Density	(2010,0120)	U	0-999	Used - printer specific
Max Density	(2010,0130)	U	0-999	Used - printer specific
Referenced Film Session Sequence	(2010,0500)	M	1.2.840.10008.5.1.1.1	
Referenced SOP Class UID	(0008,1150)	M		
Referenced SOP Instance UID	(0008,1155)	M		

The N_CREATE_RSP message from the SCP then contains the References Image Box Sequence with its SOP Class and Instance UID's, which is stored internally and then used for the Basic Image Box SOP Class N-SET RQ messages.

After all parameters for the Image boxes on the film sheet have been sent then the ACUSON S2000 system DICOM Print application SCU will issue a N_ACTION_RQ message with the SOP Instance UID of the Basic Film Box (returned in the N_CREATE_RSP of the Basic Film Box SOP Class) and the Action Type ID set to 1.

The affected SOP Instance UID received in N_CREATE_RSP message from the SCP will be saved internally and can be used later for the N_DELETE_RQ request on the Basic Film Box SOP Class.

Table 33: Attributes of the N_DELETE_RQ on the Basic Film Session SOP Class

Attribute Name	Tag	Source of Information
Requested SOP Instance UID	(0008,0018)	Affected SOP Instance UID of N_CREATE_RSP on Basic Film Box

The Basic Film Box SOP class interprets the status codes in the following table from the N_CREATE_RSP, N_DELETE_RSP and N_ACTION_RSP messages.

Table 34: Basic Film Box SOP Status

Service Status	Meaning	Protocol Codes
Failure	Unable to create print job; print queue is full	C602
	Image size is larger than image box size	C603
Warning	Film box does not contain image box (empty page)	B603
	Requested MinDensity or MaxDensity outside of printer's operating range	B605
Success	Film accepted for printing	0000

5.4.2.1.2.1.3 SOP Specific Conformance to Basic Grayscale Image Box SOP Class

The Basic Grayscale Image Box information object definition is the presentation of an image and image related data in the image area of a film. The Basic Image Box information describes the parameters and image pixel data, which apply to a single image of a sheet of film.

The printing is only suspended in the case of a failure return status of the SCP

The Grayscale Image Box SOP Class uses only the N_SET_RQ with the attributes in the following table.

Table 35: Used Basic Grayscale Image Box N-Set Attributes

Name	Attribute	Usage SCU	Supported Values
Image Position	(2020,0010)	M	1, if "formatted by printer" is selected, otherwise position for each image
Basic Grayscale Image Sequence	(2020,0110)	M	
>Samples Per Pixel	(0028,0002)	M	1
>Photometric Interpretation	(0028,0004)	M	MONOCHROME2 for Grayscale images
>Rows	(0028,0010)	M	
>Columns	(0028,0011)	M	
>Pixel Aspect Ratio	(0028,0034)	M	
>Bits Allocated	(0028,0100)	M	8
>Bits Stored	(0028,0101)	M	8
>High Bit	(0028,0102)	M	7
>Pixel Representation	(0028,0103)	M	0
>Pixel Data	(7FE0,0010)	M	

The Grayscale Image Box SOP Class interprets the following status codes:

Table 36: Basic Grayscale Image Box SOP Status

Service Status	Meaning	Protocol Codes
Failure	Image contains more pixels than printer can print in Image Box	C603
	Insufficient memory in printer to store the image	C605
Success		0000

5.4.2.1.2.1.4 SOP Specific Conformance to Basic Color Image Box SOP Class

The Basic Color Image Box information object definition is the presentation of an image and image related data in the image area of a film. The Basic Image Box information describes the presentation parameters and image pixel data, which apply to a single image of a sheet of film.

The Color Image Box SOP Class uses only the N_SET_RQ with the attributes in the following table.

Table 37: Used Basic Color Image Box N-Set Attributes

Name	Attribute	Usage SCU	Supported Values
Image Position	(2020,0010)	M	1
Basic Color Image Sequence	(2020,0111)	M	
>Samples Per Pixel	(0028,0002)	M	3
>Photometric Interpretation	(0028,0004)	M	RGB
>Planar Configuration	(0028,0006)	M	0
>Rows	(0028,0010)	M	
>Columns	(0028,0011)	M	
>Pixel Aspect Ratio	(0028,0034)	M	
>Bits Allocated	(0028,0100)	M	8
>Bits Stored	(0028,0101)	M	8

Name	Attribute	Usage SCU	Supported Values
>High Bit	(0028,0102)	M	7
>Pixel Representation	(0028,0103)	M	0
>Pixel Data	(7FE0,0010)	M	

The Color Image Box SOP Class interprets the status codes in the following table.

Table 38: Basic Color Image Box SOP Status

Service Status	Meaning	Protocol Codes
Warning	Image size larger than image box size	B604
Failure	Image contains more pixels than printer can print in Image Box	C603
	Insufficient memory in printer to store the image	C605
Success		0000

5.4.2.1.2.1.5 SOP Specific Conformance to Printer SOP Class

The Printer SOP Class has the possibility to monitor the status of the hardcopy printer in a synchronous and asynchronous way.

The ACUSON S2000 system DICOM Print application uses the mandatory N-EVENT Report DIMSE service to monitor the changes of the printer status in an asynchronous way.

It can directly ask the Print SCP for it's status or can receive Events from the Print SCP asynchronously:

- N-GET as SCU
- N-EVENT-REPORT as SCU

In both cases the following information is supported:

Table 39: Used Printer N-Event Reports

Event type name	Event	Attributes	Tag	Usage SCU
Normal	1	0000		
Warning	2	Printer status info	(2110,0020)	U
Failure	3	Printer status info	(2110,0020)	U

Table 40: Mandatory Printer N_GET_RSP, N_EVENT_REPORT_RQ Attributes

Attribute Name	Tag	Usage SCP	Supported Values
Printer Status	(2110,0010)	M	NORMAL FAILURE WARNING
Printer Status Info	(2110,0020)	M	SUPPLY EMPTY SUPPLY LOW RECEIVER FULL NO RECEIVE MGZ FILM JAM

5.4.2.1.2.1.6 SOP Specific Conformance to Print Job SOP Class

The Print Job SOP Class has the possibility to monitor the execution of the print process. The ACUSON S2000 system DICOM Print application supports the optional N-EVENT-REPORT DIMSE service to receive the changes of the print job status in an asynchronous way.

The following information is supported:

Table 41: Used Print Job N-Event Reports

Event Type Name	Event	Attributes	Tag	Usage SCU
Normal	1	Execution Status Info	(2100,0030)	U
		Print Job ID	(2100,0010)	Print Queue Management SOP Class not supported
		Film Session Label	(2000,0050)	U
		Printer Name	(2110,0030)	U
Printing	2	Exception Status Info	(2100,0030)	U
		Print Job ID	(2110,0020)	Print Queue Management SOP Class not supported
		Film Session Label	(2000,0050)	U
		Printer Name	(2110,0030)	U
Done	3	Exception Status Info	(2100,0030)	U
		Print Job ID	(2100,0010)	Print Queue Management SOP Class not supported
		Film Session Label	(2000,0050)	U
		Printer Name	(2110,0030)	U
Failure	4	Exception Status Info	(2100,0030)	U
		Print Job ID	(2100,0010)	Print Queue Management SOP Class not supported
		Film Session Label	(2000,0050)	U
		Printer Name	(2110,0030)	U

5.5 Modality Worklist AE Specification

The Modality Worklist SCU requests that the remote SCP performs a match of all keys specified in the query against the information in its worklist database. The ACUSON S2000 system system provides Standard Conformance to the following DICOM V3.0 SOP Class as an SCU:

Table 42: SOP Classes as an SCU

SOP Class Name	SOP Class UID
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31

5.5.1 Association Establishment Policies

5.5.1.1 General

The configuration of the ACUSON S2000 system DICOM modality worklist application defines the Application Entity Title, the port number, the host name and IP address.

5.5.1.2 Number of Associations

The ACUSON S2000 system DICOM application initiates one worklist association at a time, one for each transfer request being processed.

5.5.1.3 Asynchronous Nature

The ACUSON S2000 system DICOM software does not support asynchronous communication (multiple outstanding transactions over a single association).

5.5.1.4 Implementation Identifying Information

The ACUSON S2000 system DICOM software provides a single Implementation Class UID of

- "1.3.12.2.1107.5.9.20000101"

and an Implementation Version Name of

- "SIEMENS_ SWFSYNGO".

5.5.2 Association Initiation by Real-World Activity

The Modality Worklist SCU establishes an association by using the DICOM association services.

The following DIMSE-C operation is supported as SCU: C-FIND.

5.5.2.1 Real World Activity—Worklist

A separate Network association is established by the AE for each Worklist query operation, with only one active query at a time. The association is closed at completion of the query.

5.5.2.1.1 Proposed Presentation Context

Table 43: Worklist Presentation Context Table

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31	Implicit VR Little Endian Explicit VR Big Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCU	None

The ACUSON S2000 system system will always act as an SCU and be the client in a client-server model.

5.5.2.1.2 SOP Specific Conformance to Modality Worklist Service SOP Class

The ACUSON S2000 system Worklist AE provides conformance to the following DICOM Service SOP Classes as an SCU all at a standard extended level of conformance:

The following table provides the list of user configurable matching attributes requested in the Broad Query of the Modality Worklist (C-FIND).

Table 44: Modality Worklist Matching Key Attributes (Broad Query)

Module	Attribute Name	Tag	Match Type	Query Value
Scheduled Procedure Step	Scheduled Procedure Step Sequence	(0040,0100)	R	
	>Scheduled Station AE Title	(0040,0001)	R	S2000 HIS/RIS SCU AE Title or "*"
	>Scheduled Procedure Step Start Date	(0040,0002)	R	Today's date or user specified date range

Module	Attribute Name	Tag	Match Type	Query Value
	>Scheduled Procedure Step Start Time	(0040,0003)	O	Current time - 23:59:59 or User specified time range or zero length
	>Modality	(0008,0060)	R	"US" or "*"

The following table provides the list of user configurable matching attributes requested in the Patient based Query of the Modality Worklist (C-FIND).

Table 45: Modality Worklist Matching Key Attributes (Patient Based Query)

Module	Attribute Name	Tag	Match Type	Query Value
Requested Procedure Module	Requested Procedure ID	(0040,1001)	R	As entered in the "Patient Worklist Query" dialog
Image Service Request	Accession Number	(0008,0050)	R	As entered in the "Patient Worklist Query" dialog
Patient Identification	Patient's Name	(0010,0010)	R	As entered in the "Patient Worklist Query" dialog
	Patient ID	(0010,0020)	R	As entered in the "Patient Worklist Query" dialog

Return Key Attributes used from the Worklist C_FIND_RSP

The ACUSON S2000 system DICOM worklist SCU supports worklist queries with return key attributes of all types. The following table describes the return keys that the SCU supports. Most attributes can be shown in the User Interface; Patient Registration or Patient Browser. Attributes displayed in the Patient Browser are configurable.

Table 46: Modality Worklist C_FIND_RSP Return Key Attributes

Attribute Name	Tag	Return Key Type	Displayed in User Interface
SOP Common			
Specific Character Set	(0008,0005)	1C	
Scheduled Procedure Step			
Scheduled Procedure Step Sequence	(0040,0100)	1	
>Scheduled Station AE Title	(0040,0001)	1	yes
>Scheduled Procedure Step Start Date	(0040,0002)	1	yes
>Scheduled Procedure Step Start Time	(0040,0003)	1	yes
>Scheduled Procedure Step End Date	(0040,0004)	3	
>Scheduled Procedure Step End Time	(0040,0005)	3	
>Modality	(0008,0060)	1	yes
>Scheduled Performing Physician's Name	(0040,0006)	2	yes
>Scheduled Procedure Step Description	(0040,0007)	1C	yes
>Scheduled Station Name	(0040,0010)	2	yes
>Scheduled Procedure Step Location	(0040,0011)	2	yes
>Scheduled Protocol Code Sequence	(0040,0008)	1C	
>>Code Value	(0008,0100)	1C	yes
>>Coding Scheme Designator	(0008,0102)	1C	yes
>>Coding Scheme Version	(0008,0103)	3	yes
>>Code Meaning	(0008,0104)	3	yes
>Pre-Medication	(0040,0012)	2C	yes

Attribute Name	Tag	Return Key Type	Displayed in User Interface
>Scheduled Procedure Step ID	(0040,0009)	1	yes
>Requested Contrast Agent	(0032,1070)	2C	yes
>Scheduled Procedure Step Status	(0040,0020)	3	yes
>Comments on the Scheduled Procedure Step	(0040,0400)	3	
Requested Procedure			
Requested Procedure ID	(0040,1001)	1	yes
Requested Procedure Description	(0032,1060)	1C	yes
Requested Procedure Code Sequence	(0032,1064)	1C	
>Code Value	(0008,0100)	1C	yes
>Code Scheme Designator	(0008,0102)	1C	yes
>Code Scheme Version	(0008,0103)	3	yes
>Code Meaning	(0008,0104)	3	yes
Study Instance UID	(0020,000D)	1	
Referenced Study Sequence	(0008,1110)	2	
>Referenced SOP Class UID	(0008,1150)	1C	
>Referenced SOP Instance UID	(0008,1155)	1C	
Requested Procedure Priority	(0040,1003)	2	yes
Patient Transport Arrangements	(0040,1004)	2	
Reason for the Requested Procedure	(0040,1002)	3	
Confidentiality Code	(0040,1008)	3	
Reporting Priority	(0040,1009)	3	
Names of Intended Recipients of results	(0040,1010)	3	
Requested Procedure Comments	(0040,1400)	3	yes
Requested Procedure Location	(0040,1005)	3	
Imaging Service Request			
Accession Number	(0008,0050)	2	yes
Requesting Physician	(0032,1032)	2	yes
Referring Physician's Name	(0008,0090)	2	yes
Reason for the Imaging Service Request	(0040,2001)	3	
Imaging Service Request Comments	(0040,2400)	3	yes
Requesting Service	(0032,1033)	3	yes
Issuing Date of Imaging Service Request	(0040,2004)	3	
Issuing Time of Imaging Service Request	(0040,2005)	3	
Placer Order Number / Imaging Service Request	(0040,2016)	3	
Filler Order Number / Imaging Service Request	(0040,2017)	3	
Order entered by...	(0040,2008)	3	
Order Enterer's Location	(0040,2009)	3	
Order Callback Phone Number	(0040,2010)	3	
Visit Identification			
Admission ID	(0038,0010)	2	yes
Issuer of Admission ID	(0038,0011)	3	

Attribute Name	Tag	Return Key Type	Displayed in User Interface
Visit Status			
Current Patient Location	(0038,0300)	2	yes
Visit Relationship			
Referenced Patient Sequence	(0008,1120)	2	
>Referenced SOP Class UID	(0008,1150)	2	
>Referenced SOP Instance UID	(0008,1155)	2	
Visit Admission			
Institution Name	(0008,0080)	3	yes
Admitting Diagnoses Description	(0008,1080)	3	yes
Patient Identification			
Patient's Name	(0010,0010)	1	yes
Patient ID	(0010,0020)	1	yes
Other Patient IDs	(0010,1000)	3	
Other Patient Names	(0010,1001)	3	
Patient Demographic			
Patients Birth Date	(0010,0030)	2	yes
Patient's Sex	(0010,0040)	2	yes
Patient's Primary Language Code Sequence	(0010,0101)	3	
>Code Value	(0008,0100)	1	
>Coding Scheme Designator	(0008,0102)	1	
>Code Meaning	(0008,0104)	1	
>Patient's Primary Language Code Modifier Sequence	(0010,0102)	3	
>>Code Value	(0008,0100)	1	
>>Coding Scheme Designator	(0008,0102)	1	
>>Code Meaning	(0008,0104)	1	
Patient's Size	(0010,1020)	3	yes
Patient's Weight	(0010,1030)	2	yes
Confidentiality constraint on patient data	(0040,3001)	2	
Patient's Address	(0010,1040)	3	
Military Rank	(0010,1080)	3	yes
Ethnic Group	(0010,2160)	3	yes
Patient Comments	(0010,4000)	3	yes
Patient Medical			
Patient State	(0038,0500)	2	yes
Pregnancy Status	(0010,21C0)	2	yes
Medical Alerts	(0010,2000)	2	yes
Contrast Allergies	(0010,2110)	2	yes
Special Needs	(0038,0050)	2	yes
Smoking Status	(0010,21A0)	3	yes
Last Menstrual Date	(0010,21D0)	3	yes
Additional Patient History	(0010,21B0)	3	yes

5.5.2.1.3 Error Handling

The following table indicates the possible response status codes, which a SCP may return following the SCU's C-FIND command. Only those status responses that indicate some form of error condition are presented to the user.

Table 47: C-FIND Status Responses

Service Status	Further Meaning	Protocol Codes
Refused	Out of resources	A700
Failed	Identifier does not match SOP Class	A900
	Unable to process	Cxxx
Cancel	Matching terminated due to Cancel request	FE00
Success	Matching is complete - No final Identifier is supplied.	0000
Pending	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys.	FF00
	Matches are continuing - Warning that one or more Optional Keys were not supported for existence and/or for this Identifier.	FF01

5.6 Modality Performed Procedure Step AE Specification

The Modality Performed Procedure Step SCU informs the remote SCP about the performed examinations at the modality. The ACUSON S2000 system provides Standard Conformance to the following DICOM V3.0 SOP Class as an SCU:

Table 48: SOP Classes as an SCU

SOP Class Name	SOP Class UID
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3

5.6.1 Association Establishment Policies

5.6.1.1 General

The configuration of the ACUSON S2000 system DICOM Performed Procedure Step application defines the Application Entity Title, the port number, the host name and IP address.

5.6.1.2 Number of Associations

The ACUSON S2000 system DICOM application initiates one/several association(s) at a time, one for each transfer request being processed.

5.6.1.3 Asynchronous Nature

The ACUSON S2000 system DICOM software does not support asynchronous communication (multiple outstanding transactions over a single association).

5.6.1.4 Implementation Identifying Information

The ACUSON S2000 system DICOM software provides a single Implementation Class UID of

- "1.3.12.2.1107.5.9.20000101"

and an Implementation Version Name of

- "SIEMENS_ SWFSYNGO".

5.6.2 Association Initiation by Real-World Activity

The Modality Performed Procedure Step SCU establishes an association by using the DICOM association services.

The following DIMSE-N operations are supported as SCU:

- N-CREATE
- N-SET

5.6.2.1 Real World Activity

5.6.2.1.1 Associated Real-World Activity

The associated Real-World activity is to send examination information to an SCP by using the DICOM Modality Performed Procedure Step Service.

5.6.2.1.2 Proposed Presentation Contexts

The ACUSON S2000 system DICOM application will propose Presentation Contexts as shown in the following table:

Table 49: Proposed Presentation Contexts

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	Implicit VR Little Endian Explicit VR Big Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCU	None

5.6.2.1.3 SOP Specific Conformance Statement

Attributes used for the Performed Procedure Step N-CREATE

The ACUSON S2000 system DICOM performed procedure step SCU informs the remote SCP when the examination of a scheduled procedure step will be performed. The N-CREATE message is sent when the examination is started. The following table describes the supported attributes for a N-CREATE message.

Table 50: Performed Procedure Step N-CREATE Attributes

Attribute Name	Tag	Required Type	Value
SOP Common			
Specific Character Set	(0008,0005)	1C	from MWL or created
Performed Procedure Step Relationship			
Scheduled Step Attribute Sequence	(0040,0270)	1	
>Study Instance UID	(0020,000D)	1	from MWL or created
>Referenced Study Sequence	(0008,1110)	2	from MWL or zero length
>>Referenced SOP Class UID	(0008,1150)	1C	
>>Referenced SOP Instance UID	(0008,1155)	1C	
>Accession Number	(0008,0050)	2	from MWL or user input

Attribute Name	Tag	Required Type	Value
>Placer Order Number / Imaging Service Request	(0040,2016)	3	from MWL or zero length
>Filler Order Number / Imaging Service Request	(0040,2017)	3	from MWL or zero length
>Requested Procedure ID	(0040,1001)	2	from MWL or user input
>Requested Procedure Description	(0032,1060)	2	from MWL or zero length
>Scheduled Procedure Step ID	(0040,0009)	2	from MWL or zero length
>Scheduled Procedure Step Description	(0040,0007)	2	from MWL or zero length
>Scheduled Protocol Code Sequence	(0040,0008)	2	from MWL or zero length
>>Code Value	(0008,0100)	1C	
>>Coding Scheme Designator	(0008,0102)	1C	
>>Code Scheme Version	(0008,0103)	3	
>>Code Meaning	(0008,0104)	3	
Patient's Name	(0010,0010)	2	from MWL or user input
Patient ID	(0010,0020)	2	from MWL or user input or created
Patients Birth Date	(0010,0030)	2	from MWL or user input
Patient's Sex	(0010,0040)	2	from MWL or user input
Referenced Patient Sequence	(0008,1120)	2	from MWL or zero length
>Referenced SOP Class UID	(0008,1150)	1C	
>Referenced SOP Instance UID	(0008,1155)	1C	
Performed Procedure Step Information			
Performed Procedure Step ID	(0040,0253)	1	from SPS ID or created
Performed Station AE Title	(0040,0241)	1	own AE Title
Performed Station Name	(0040,0242)	2	own hostname
Performed Location	(0040,0243)	2	from SPS Location or zero length
Performed Procedure Step Start Date	(0040,0244)	1	created
Performed Procedure Step Start Time	(0040,0245)	1	created
Performed Procedure Step Status	(0040,0252)	1	IN PROGRESS
Performed Procedure Step Description	(0040,0254)	2	from SPS Description or zero length
Performed Procedure Type Description	(0040,0255)	2	zero length
Procedure Code Sequence	(0008,1032)	2	from Requested Procedure Code or zero length
>Code Value	(0008,0100)	1C	
>Code Scheme Designator	(0008,0102)	1C	
>Code Scheme Version	(0008,0103)	3	
>Code Meaning	(0008,0104)	3	
Performed Procedure Step End Date	(0040,0250)	2	zero length
Performed Procedure Step End Time	(0040,0251)	2	zero length
Comments on the Performed Procedure Step	(0040,0280)	3	from MPPS dialog
Image Acquisition Results			
Modality	(0008,0060)	1	US
Study ID	(0020,0010)	2	from Requested Procedure ID or created
Performed Protocol Code Sequence	(0040,0260)	2	from Scheduled Action Item Code SQ or zero length

Attribute Name	Tag	Required Type	Value
>Code Value	(0008,0100)	1C	
>Code Scheme Designator	(0008,0102)	1C	
>Code Scheme Version	(0008,0103)	3	
>Code Meaning	(0008,0104)	3	
Performed Series Sequence	(0040,0340)	2	
>Performing Physicians's Name	(0008,1050)	2C	from MWL or user input
>Protocol Name	(0018,1030)	1C	set to "unknown"
>Operator's Name	(0008,1070)	2C	user input
>Series Instance UID	(0020,000E)	1C	created
>Series Description	(0008,103E)	2C	zero length
>Retrieve AE Title	(0008,0054)	2C	zero length
>Referenced Image Sequence	(0008,1140)	2C	zero length
>>Referenced SOP Class UID	(0008,1150)	1C	
>>Referenced SOP Instance UID	(0008,1155)	1C	
>Referenced Non-Image Composite SOP Instance Sequence	(0040,0220)	2C	
>>Referenced SOP Class UID	(0008,1150)	1C	
>>Referenced SOP Instance UID	(0008,1155)	1C	
>Referenced Standalone SOP Instance Sequence	(0040,0220)	2C	zero length
Billing and Material Code			
Billing Procedure Step Sequence	(0040,0320)	3	
>Code Value	(0008,0100)	1C	
>Code Scheme Designator	(0008,0102)	1C	
>Code Scheme Version	(0008,0103)	1C	
>Code Meaning	(0008,0104)	1C	
Film Consumption Sequence	(0040,0321)	3	
>Number of Films	(2100,0170)	3	
>Medium Type	(2000,0030)	3	
>Film Size ID	(2010,0050)	3	
Billing Supplies and Devices Sequence	(0040,0324)	3	
>Billing Item Sequence	(0040,0296)	3	
>>Code Value	(0008,0100)	1C	
>>Code Scheme Designator	(0008,0102)	1C	
>>Code Scheme Version	(0008,0103)	1C	
>>Code Meaning	(0008,0104)	1C	
>Quantity Sequence	(0040,0293)	3	
>> Quantity	(0040,0294)	3	
>>Measuring Units Sequence	(0040,0295)	1C	
>>>Code Value	(0008,0100)	1C	
>>>Code Scheme Designator	(0008,0102)	1C	
>>>Code Scheme Version	(0008,0103)	1C	
>>>Code Meaning	(0008,0104)	1C	

Status Codes of the Performed Procedure Step N-CREATE

The Performed Procedure Step SCU interprets the following status values:

Table 51: N-CREATE Response Status

Service Status	Meaning	Status Codes (0000,0900)
Failure	Processing Failure	0110
	No such attribute	0105
	Invalid attribute value	0106
	Duplicate SOP Instance	0111
	No such SOP Instance	0112
	No such SOP class	0118
	Class instance conflict	0119
	Missing attribute	0120
	Missing attribute value	0121
	Resource limitation	0213
Success	Successful Operation	0000

Attributes used for the Performed Procedure Step N-SET

The ACUSON S2000 system DICOM performed procedure step SCU informs the remote SCP about the performed examination and its status. The N-SET message is only sent once when the exam is ended with status “COMPLETED” or when the examination could not be completed with status “DISCONTIN-UED”. The following table describes the supported attributes for a N-SET message.

Table 52: Performed Procedure Step N-SET Attributes

Attribute name	Tag	Required Type	Value
Performed Procedure Step Information			
Performed Procedure Step Status	(0040,0252)	3	COMPLETED or DISCONTINUED
Performed Procedure Step Description	(0040,0254)	3	from SPS Description or user input
Performed Procedure Type Description	(0040,0255)	3	user input
Procedure Code Sequence	(0008,1032)	3	from Requested Procedure Code
>Code Value	(0008,0100)	1C	
>Code Scheme Designator	(0008,0102)	1C	
>Code Scheme Version	(0008,0103)	3	
>Code Meaning	(0008,0104)	3	
Performed Procedure Step End Date	(0040,0250)	3	created
Performed Procedure Step End Time	(0040,0251)	3	created
Image Acquisition Results			
Performed Action Item Code Sequence	(0040,0260)	3	from Scheduled Action Item Code SQ.
>Code Value	(0008,0100)	1C	
>Code Scheme Designator	(0008,0102)	1C	
>Code Scheme Version	(0008,0103)	3	
>Code Meaning	(0008,0104)	3	
Performed Series Sequence	(0040,0340)	3	
>Performing Physicians’s Name	(0008,1050)	2C	from MWL or user input
>Protocol Name	(0018,1030)	1C	user input or set to “unknown”

Attribute name	Tag	Required Type	Value
>Operator's Name	(0008,1070)	2C	user input
>Series Instance UID	(0020,000E)	1C	created
>Series Description	(0008,103E)	2C	user input
>Retrieve AE Title	(0008,0054)	2C	from Storage Commitment RSP or zero length
>Referenced Image Sequence	(0008,1140)	2C	created
>>Referenced SOP Class UID	(0008,1150)	1C	
>>Referenced SOP Instance UID	(0008,1155)	1C	
>Referenced Standalone SOP Instance Sequence	(0040,0220)	2C	zero length
All other attributes from Billing and Material Code Module		3	user input

Status Codes of the Performed Procedure Step N-SET

The Performed Procedure Step SCU interprets the following status values:

Table 53: N-SET Response Status

Service Status	Meaning	Status Codes (0000,0900)
Failure	Processing Failure: Performed Procedure Step Object may no longer be updated	0110
	No such attribute	0105
	Invalid attribute value	0106
	No such SOP Instance	0112
	Invalid object instance	0117
	No such SOP class	0118
	Class instance conflict	0119
Failure	Missing attribute value	0121
	Resource limitation	0213
Success	Successful Operation	0000

5.7 Query/Retrieve Service AEs Specification

The Query/Retrieve SCU requests that the remote SCP performs a match of all keys specified in the request, against the information in its database and the identified images will be moved over a different (C-MOVE) storage association.

The Query/Retrieve SCP responds to queries based on the records based on its database and images will be sent to the requesting SCU or to a different storage destination.

ACUSON S2000 DICOM products provide Standard Conformance to the following DICOM SOP Classes as SCU:

SOP Class Name	SOP Class UID
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2
Patient/Study Only Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.3.1
Patient/Study Only Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.3.2

ACUSON S2000 DICOM products provide Standard Conformance to the following DICOM SOP Classes as an SCP:

SOP Class Name	SOP Class UID
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2
Patient Root Query/Retrieve Information Model - GET	1.2.840.10008.5.1.4.1.2.1.3
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2
Study Root Query/Retrieve Information Model - GET	1.2.840.10008.5.1.4.1.2.2.3
Patient/Study Only Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.3.1
Patient/Study Only Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.3.2
Patient/Study Only Query/Retrieve Information Model - GET	1.2.840.10008.5.1.4.1.2.3.3

5.7.1 Association Establishment Policies

5.7.1.1 General

With the “Search...” function the query data are input and the DICOM query/retrieve application is started. A query request will be sent out to one remote node that can be selected from a list of configured Query Providers and the response data will be displayed for the user. Upon request (Import), the retrieval of selected items is initiated.

The default PDU size used will be 28 KB.

5.7.1.2 Number of Associations

The ACUSON S2000 system DICOM application initiates several associations at a time, one for each destination to which a transfer request is being processed in the active job queue list.

The ACUSON S2000 system DICOM application is able to accept multiple associations at a time. It can handle up to 10 associations in parallel.

5.7.1.3 Asynchronous Nature

The ACUSON S2000 system DICOM software does not support asynchronous communication (multiple outstanding transactions over a single association).

5.7.1.4 Implementation Identifying Information

The ACUSON S2000 system DICOM software provides a single Implementation Class UID of

- “1.3.12.2.1107.5.9.20000101”

and an Implementation Version Name of

- “SIEMENS_SWFSYNGO”.

5.7.1.5 Association Initiation Policy

The query user interface will request the query-data from user and triggers one C-FIND request to the selected remote node. The response data will be displayed in the query UI for further data navigation.

When requesting Import of related items the browser requests the retrieve application to send a C-MOVE request to the related remote node. Images will then be received by the Storage SCP as described in the related section.

5.7.2 Real World Activity - Find SCU

5.7.2.1 Associated Real-World Activity - Find SCU "Search"

The associated Real-World activity is to fill out a query form with search data and pass it as query to the network application which issues a C-FIND over a previously built association. The remote SCP will respond with related data-entries that will be passed to a browser application. When data transfer is finished the association is closed.

5.7.2.2 Proposed Presentation Contexts - Find SCU

The ACUSON S2000 system DICOM application will propose Presentation Contexts as shown in the following table:

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	**UID**	**Name**	**UID**		
Patient Root Query/Retrieve Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None
Study Root Query/Retrieve Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None
Patient/Study Only Query/Retrieve Model – FIND	1.2.840.10008.5.1.4.1.2.3.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

It is configurable which of the two query models (or both) are to be used by the ACUSON S2000 system DICOM Query SCU application. If both Abstract Syntaxes are configured, The C-FIND SCU will use the Patient Root Model only for C-FIND requests on PATIENT level. For all other levels it will use the STUDY root model.

5.7.2.3 SOP Specific Conformance - Find SCU

The ACUSON S2000 system DICOM Query/Retrieve SCU supports hierarchical queries with all mandatory search keys. The interactive querying of attributes on IMAGE level is not supported by the Query SCU. Though, retrieval of individual Objects is possible. The following table describes the search keys for the different query models that the SCU supports. Matching is either wildcard, which means that the user can supply a string containing wildcards, or universal, which means that the attribute is requested as return value.

Attribute Name	Tag	Type	Matching	User Input	Return Value Display
Patient Level [a]					
Patient Name	(0010,0010)	R	Wildcardb	enter value	yes
Patient ID	(0010,0020)	U	Wildcard[b]	enter value	yes
Patient's Birth date	(0010,0030)	O	universal (Null)	enter value	yes
Patient's Sex	(0010,0040)	O	universal (Null)	enter value	yes
Number of Patient related Studies	(0020,1200)	O	universal (Null)		yes[c]
Number of Patient related Series	(0020,1202)	O	universal (Null)		no
Number of Patient related Instances	(0020,1204)	O	universal (Null)		no

Attribute Name	Tag	Type	Matching	User Input	Return Value Display
Study Level					
Patient Name[d]	(0010,0010)	R	Wildcardb	enter value	yes
Patient ID	(0010,0020)	R	Wildcardb	enter value	yes
Patient's Birth date [d]	(0010,0030)	O	universal (Null)	enter value	yes
Patient's Sex [d]	(0010,0040)	O	universal (Null)	enter value	yes
Study Instance UID	(0020,000D)	U	universal (Null)		no
Study ID	(0020,0010)	R	universal (Null)	enter value	yes
Study Date	(0008,0020)	R	universal (Null)	enter value	yes
Study Time	(0008,0030)	R	universal (Null)	-	yes
Accession Number	(0008,0050)	R	universal (Null)	Enter value	yes
Study Description	(0008,1030)	O	universal (Null)	Enter value	yes
Referring Physician's Name	(0008,0090)	O	universal (Null)	Enter value	yes
Name of Physician Reading Study	(0008,1060)	O	universal (Null)	Enter value	yes
Modalities in Study	(0008,0061)	O	universal (Null)	Enter value	yes
Storage Media File-Set ID	(0008,0130)	O	universal (Null)		no
Retrieve AE Title	(0008,0054)	O	universal (Null)		no
Number of Study related Series	(0020,1206)	O	universal (Null)		yes[a]
Number of Study related Instances	(0020,1208)	O	universal (Null)		no
Series Level					
Series Instance UID	(0020,000E)	U	universal (Null)		no
Series Number	(0020,0011)	R	universal (Null)		yes
Modality	(0008,0060)	R	universal (Null)	enter value	yes
Series Description	(0008,103E)	O	universal (Null)	enter value	yes
Body Part Examined	(0018,0015)	O	universal (Null)	enter value	yes
Performing Physician	(0008,1050)	O	universal (Null)	enter value	yes
Storage Media File-Set ID	(0008,0130)	O	universal (Null)		yes
Retrieve AE Title	(0008,0054)	O	universal (Null)		yes
Protocol Name	(0018,1030)	O	universal (Null)		no
Perf. Procedure Step Start Date	(0040,0244)	O	universal (Null)		yes
Perf. Procedure Step Start Time	(0040,0245)	O	universal (Null)		yes
Requested Attribute Sequence	(0040,0275)	O	universal (Null)		yes
> Requested Procedure ID	(0040,1001)	O	universal (Null)		yes
> Scheduled Procedure ID	(0040,0009)	O	universal (Null)		yes
Number of Series related Instances	(0020,1209)	O	universal (Null)		yes
Image Level					
SOP Instance UID	(0008,0018)	U	single value		no
Image Number	(0020,0013)	R	universal (Null)		yes
Storage Media File-Set ID	(0008,0130)	O	universal (Null)		no
Retrieve AE Title	(0008,0054)	O	universal (Null)		no
Instance Date	(0008,0023)	O	universal (Null)		no
Instance Time	(0008,0033)	O	universal (Null)		no
Number of Frames	(0028,0008)	O	universal (Null)		yes

Attribute Name	Tag	Type	Matching	User Input	Return Value Display
Content Date	(0008,0023)	O	single value, range matching, universal	enter value	yes
Content Time	(0008,0033)	O	single value, range matching, universal	enter value	yes
Referenced Request Sequence	(0040,A370)	O	sequence matching		yes
>Accession Number	0008,0050)	O	single value, universal		yes
>Requested Procedure ID	(0040,1000)	O	single value, universal		yes
Concept Name Code Sequence	(0040,A043)	O	sequence matching	enter value	yes
>Code Value	(0008,0100)	O	single value, universal, wildcard		yes
>Coding Scheme Designator	(0008,0102)	O	single value, universal, wildcard		yes
>Coding Scheme Version	(0008,0103)	O	single value, universal, wildcard		yes
>Code Meaning	(0008,0104)	O	single value, universal, wildcard		yes
Template Identifier	(0040,DB00)	O	single value, universal, wildcard		yes
Completion Flag	(0040,A491)	O	single value, universal, wildcard	enter value	yes
Verification Flag	(0040,A493)	O	single value, universal, wildcard	enter value	yes
Verifying Observer Sequence	(0040,A073)	O	sequence matching	enter value	yes
>Verifying Organization	(0040,A027)	O	single value, universal, wildcard		yes
>Verifying DateTime	(0040,A030)	O	single value, range matching, universal	enter value	yes
>Verifying Observer Name	(0040,A075)	O	single value, universal, wildcard	enter value	yes
>Verifying Observer Identification Code Sequence	(0040,A088)	O	sequence matching		yes
>>Code Value	(0008,0100)	O	single value, universal, wildcard		yes

Attribute Name	Tag	Type	Matching	User Input	Return Value Display
>>Coding Scheme Designator	(0008,0102)	O	single value, universal, wildcard		yes
>>Coding Scheme Version	(0008,0103)	O	single value, universal, wildcard		yes
>>Code Meaning	(0008,0104)	O	single value, universal, wildcard		yes

Note:
a Patient Root Information Model only
b Always a '*' is appended to the user-supplied string
c Implicitely visualized in the UI if no study and series search attributes have been entered
d Study Root Information Model only
e Date range also possible

Service Status	Meaning	Protocol Codes	Related Fields
Refused	Out of Resources	A700	(0000,0902)
Failed	Identifier does not match SOP Class	A900	(0000,0901) (0000,0902)
	Unable to process	CXX	(0000,0901) (0000,0902)
Cancel	Matching terminated due to Cancel request	FE00	None
Success	Matching is complete - No final Identifier is supplied	0000	None
Pending	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys	FF00	Identifier
	Matches are continuing - Warning that one or more Optional Keys were not supported for existence and/or matching for this identifier	FF01	Identifier

5.7.3 Real-World Activity – Move SCU

5.7.3.1 Associated Real-World Activity - Move SCU "Import"

When an entry ise selected in the Query UI and activate the "Import" function, a retrieval request is passed via a C-MOVE service according to the Patient Root or Study Root query model.

C-MOVE operation on Patient Level is not supported by the Query UI.

5.7.3.2 Proposed Presentation Contexts - Move SCU

The ACUSON S2000 system DICOM application will propose Presentation Contexts as shown in the following table:

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Patient Root Query/Retrieve Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Study Root Query/Retrieve Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None
Patient/Study Only Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.3.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

5.7.3.3 SOP Specific Conformance - Move SCU "Import"

At association establishment the C-MOVE presentation context shall be negotiated. The C-STORE sub-operations must be done on a different association to transfer images to the Storage Service Class SCP.

The Move SCU interprets following status codes:

Service Status	Meaning	Protocol Codes	Related Fields
Refused	Out of Resources	A700	(0000,0902)
Failed	Identifier does not match SOP Class	A900	(0000,0901) (0000,0902)
	Unable to process	CXX	(0000,0901) (0000,0902)
Cancel	Matching terminated due to Cancel request	FE00	None
Success	Matching is complete - No final Identifier is supplied	0000	None
Pending	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys	FF00	Identifier
	Matches are continuing - Warning that one or more Optional Keys were not supported for existence and/or matching for this identifier	FF01	Identifier

5.7.4 Association Acceptance Policy

The ACUSON S2000 system DICOM application will accept associations for the following DIMSE-C operations as SCP:

- C-FIND
- C-GET
- C-MOVE
- C-FIND-CANCEL
- C-GET-CANCEL
- C-MOVE-CANCEL

5.7.4.1 Real-World Activity – Find SCP

5.7.4.1.1 Associated Real-World Activity - Find SCP

The associated Real-World activity is to respond query requests to an SCU with the query model Patient Root, Study Root and Patient/Study Only. Relational retrieve operation is NOT supported. With a C-FIND-CANCEL request the current query can be canceled at any time.

Multiple C-FIND requests over the same association are supported.

5.7.4.1.2 Accepted Presentation Contexts - Find SCP

The ACUSON S2000 system DICOM application will accept Presentation Contexts as shown in the following table:

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	**UID**	**Name**	**UID**		
Patient Root Query/Retrieve Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
Study Root Query/Retrieve Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
Patient/Study Only Query/Retrieve Model – FIND	1.2.840.10008.5.1.4.1.2.3.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None

Note: C-FIND Extended Negotiation will NOT be supported.

The order of preference for accepting Transfer Syntaxes is: 1. Explicit VR Little Endian, 2. Explicit VR Big Endian, 3. Implicit VR Little Endian

5.7.4.1.3 SOP Specific Conformance Statement - Find SCP

The ACUSON S2000 system DICOM Query/Retrieve SCP supports hierarchical queries with all mandatory and optional search keys.

The query attribute contents are case-sensitive.

With wildcard queries the symbol “?” is treated as “*” by the C-FIND SCP application. As a consequence the query string of “?abc*” will be processed as “*abc*”.

If the value for the patient-level unique key “Patient ID” is not known, it may be returned with zero length. The attribute “Image Comments” will not be included in the C-FIND-RSP, if it is not set in the DB, even if it was requested as return key in the related C-FIND-RQ.

Usage of Storage Media File-Set ID, Retrieve AE Title with C-FIND-RSP message:

- The C-FIND SCP may return the DICOM attributes StorageMediaFileSetID (0088,0130) and StorageMediaFileSetUID (0088,0140) as empty or not at all. The Storage Media File-Set ID - if existent - can be returned at Study/Series/Image Level. Only on Image Level, the values of ONLINE, NEARLINE of OFFLINE are returned to indicate the Storage Location of the related Instance.
- The C-FIND SCP may return the DICOM attribute Retrieve AE Title (0008,0054) as empty or not at all. The Retrieve AE Title - if existent - can only be returned at Image Level (for Patient Root and Study Root models) or Study Level (for Patient/Study Only model).

Relational Queries are not supported.

A remote DICOM AE can cancel the running query by sending a C-FIND-CANCEL. Matches are possibly continuing (more C-FIND response with status PENDING) until the cancel operation has completed.

The supported attributes on the various query levels of the three supported information models are listed in the tables of the following sections.

5.7.4.1.4 Patient Root Information Model

Attribute Name	Tag	Usage SCU	Matching
Patient Level			
Patient Name	(0010,0010)	R	Single value, Wildcard, Universal
Patient ID	(0010,0020)	U	Single value, Wildcard, Universal
Patient's Birth Date	(0010,0030)	O	Single value, Range, Universal
Patient's Birth Time	(0010,0032)	O	Single value, Range, Universal
Patient's Sex	(0010,0040)	O	Single value, Wildcard, Universal
Ethnic Group	(0010,2160)	O	Single value, Wildcard, Universal
Patient Comments	(0010,4000)	O	Wildcard, Universal
Number of Patient related Studies	(0020,1200)	O	Universal
Number of Patient related Series	(0020,1202)	O	Universal
Number of Patient related Instances	(0020,1204)	O	Universal
Study Level			
Study Instance UID	(0020,000D)	U	Single value, List of UIDs
Study ID	(0020,0010)	R	Single value, Wildcard, Universal
Study Date	(0008,0020)	R	Single value, Range, Universal
Study Time	(0008,0030)	R	Single value, Range, Universal
Accession Number	(0008,0050)	R	Single value, Wildcard, Universal
Referring Physician's Name	(0008,0090)	O	Single value, Wildcard, Universal
Study Description	(0008,1030)	O	Single value, Wildcard, Universal
Admitting Diagnoses Description	(0008,1080)	O	Single value, Wildcard, Universal
Patient's Age	(0010,1010)	O	Single value, Wildcard, Universal
Patient's Size	(0010,1020)	O	Single value, Universal
Patient's Weight	(0010,1030)	O	Single value, Universal
Occupation	(0010,2180)	O	Single value, Wildcard, Universal
Additional Patient History	(0010,21B0)	O	Wildcard, Universal
Name of Physician reading Study	(0008,1060)	O	Single value, Wildcard, Universal
Modalities in Study	(0008,0061)	O	Multiple values, Universal
Number of Study related Series	(0020,1206)	O	Universal
Number of Study related Instances	(0020,1208)	O	Universal
Series Level			
Series Instance UID	(0020,000E)	U	Single value, List of UID
Series Number	(0020,0011)	R	Single value, Universal
Modality	(0008,0060)	R	Single value, Wildcard, Universal
Laterality	(0020,0060)	O	Single value, Wildcard, Universal
Body Part Examined	(0018,0015)	O	Single value, Wildcard, Universal
Patient Position	(0018,5100)	O	Single value, Wildcard, Universal
Smallest Pixel Value in Series	(0028,0108)	O	Single value, Universal
Largest Pixel Value in Series	(0028,0109)	O	Single value, Universal
Protocol Name	(0018,1030)	O	Single value, Wildcard, Universal
Series Date	(0008,0021)	O	Single value, Range, Universal
Series Time	(0008,0031)	O	Single value, Range, Universal
Series Description	(0008,103E)	O	Single value, Wildcard, Universal

Attribute Name	Tag	Usage SCU	Matching
Operators Name	(0008,1070)	O	Single value, Wildcard, Universal
Performing Physician's Name	(0008,1050)	O	Single value, Wildcard, Universal
Perf. Procedure Step Start Date	(0040,0244)	O	Universal
Perf. Procedure Step Start Time	(0040,0245)	O	Universal
Number of Series related Instances	(0020,1209)	O	Universal
Referenced Request Sequence	(0040,A370)	O	Sequence matching
Image Level			
SOP Instance UID	(0008,0018)	U	Single value, List of UID
SOP Class UID	(0008,0016)	O	Single value
Image Number	(0020,0013)	R	Single value, Universal
Image Date	(0008,0023)	O	Single value, Range, Universal
Image Time	(0008,0033)	O	Single value, Range, Universal
Modality	(0008,0060)	O	Single value, Wildcard, Universal
Image Comments	(0020,4000)	O	Universal
Content Date	(0008,0023)	O	Single value, Range, Universal
Content Time	(0008,0033)	O	Single value, Range, Universal
>Accession Number	0008,0050)	O	Single value, Universal
>Requested Procedure ID	(0040,1000)	O	Single value, Universal
Concept Name Code Sequence	(0040,A043)	O	Sequence matching
>Code Value	(0008,0100)	O	Single value, Wildcard, Universal
>Coding Scheme Designator	(0008,0102)	O	Single value, Wildcard, Universal
>Coding Scheme Version	(0008,0103)	O	Single value, Wildcard, Universal
>Code Meaning	(0008,0104)	O	Single value, Wildcard, Universal
Template Identifier	(0040,DB00)	O	Single value, Wildcard, Universal
Completion Flag	(0040,A491)	O	Single value, Wildcard, Universal
>Verifying Observer Name	(0040,A075)	O	Single value, Wildcard, Universal
>Verifying Observer Identification Code Sequence	(0040,A088)	O	Sequence matching
>>Code Value	(0008,0100)	O	Single value, Wildcard, Universal
>>Coding Scheme Designator	(0008,0102)	O	Single value, Wildcard, Universal
>>Coding Scheme Version	(0008,0103)	O	Single value, Wildcard, Universal
>>Code Meaning	(0008,0104)	O	Single value, Wildcard, Universal

5.7.4.1.5 Study Root Information Model

Attribute Name	Tag	Usage SCU	Matching
Study Level			
Patient Name	(0010,0010)	R	Single value, Wildcard, Universal
Patient ID	(0010,0020)	R	Single value, Wildcard, Universal
Patient's Birth Date	(0010,0030)	O	Single value, Range, Universal
Patient's Birth Time	(0010,0032)	O	Single value, Range, Universal
Patient's Sex	(0010,0040)	O	Single value, Wildcard, Universal
Patient Comments	(0010,4000)	O	Wildcard, Universal
Number of Patient related Studies	(0020,1200)	O	Universal
Number of Patient related Series	(0020,1202)	O	Universal
Number of Patient related Instances	(0020,1204)	O	Universal
Study Instance UID	(0020,000D)	U	Single value, List of UIDs
Study ID	(0020,0010)	R	Single value, Wildcard, Universal
Study Date	(0008,0020)	R	Single value, Range, Universal
Study Time	(0008,0030)	R	Single value, Range, Universal

Attribute Name	Tag	Usage SCU	Matching
Accession Number	(0008,0050)	R	Single value, Wildcard, Universal
Referring Physician's Name	(0008,0090)	O	Single value, Wildcard, Universal
Study Description	(0008,1030)	O	Single value, Wildcard, Universal
Admitting Diagnosis Description	(0008,1080)	O	Single value, Wildcard, Universal
Patient's Age	(0010,1010)	O	Single value, Wildcard, Universal
Patient's Size	(0010,1020)	O	Single value, Universal
Patient's Weight	(0010,1030)	O	Single value, Universal
Occupation	(0010,2180)	O	Single value, Wildcard, Universal
Additional Patient History	(0010,21B0)	O	Wildcard, Universal
Name of Physician reading the Study	(0008,1060)	O	Single value, Wildcard, Universal
Modalities in Study	(0008,0061)	O	Multiple values, Universal
Number of Study Related Series	(0020,1206)	O	Universal
Number of Study Related Instances	(0020,1208)	O	Universal
Series Level			
Series Instance UID	(0020,000E)	U	Single value, List of UIDs
Series Number	(0020,0011)	R	Single value, Universal
Modality	(0008,0060)	R	Single value, Wildcard, Universal
Laterality	(0020,0060)	O	Single value, Wildcard, Universal
Body Part Examined	(0018,0015)	O	Single value, Wildcard, Universal
Patient Position	(0018,5100)	O	Single value, Wildcard, Universal
Smallest Pixel Value in Series	(0028,0108)	O	Single value, Universal
Largest Pixel Value in Series	(0028,0109)	O	Single value, Universal
Protocol Name	(0018,1030)	O	Single value, Wildcard, Universal
Series Date	(0008,0021)	O	Single value, Range, Universal
Series Time	(0008,0031)	O	Single value, Range, Universal
Series Description	(0008,103E)	O	Single value, Wildcard, Universal
Operator's Name	(0008,1070)	O	Single value, Wildcard, Universal
Performing Physician's Name	(0008,1050)	O	Single value, Wildcard, Universal
Performed Procedure Step Start Date	(0040,0244)	O	Universal
Performed Procedure Step Start Time	(0040,0245)	O	Universal
Number of Series related Instances	(0020,1209)	O	Universal
Image Level			
SOP Instance UID	(0008,0018)	U	Single value, List of UIDs
SOP Class UID	(0008,0016)	O	Single value
Image Number	(0020,0013)	R	Single value, Universal
Image Date	(0008,0023)	O	Single value, Range, Universal
Image Time	(0008,0033)	O	Single value, Range, Universal
Modality	(0008,0060)	O	Single value, Wildcard, Universal
Image Comments	(0020,4000)	O	Universal
Content Date	(0008,0023)	O	Single value, Range, Universal
Content Time	(0008,0033)	O	Single value, Range, Universal
>Accession Number	0008,0050)	O	Single value, Universal
>Requested Procedure ID	(0040,1000)	O	Single value, Universal
Concept Name Code Sequence	(0040,A043)	O	Sequence matching
>Code Value	(0008,0100)	O	Single value, Wildcard, Universal
>Coding Scheme Designator	(0008,0102)	O	Single value, Wildcard, Universal
>Coding Scheme Version	(0008,0103)	O	Single value, Wildcard, Universal
>Code Meaning	(0008,0104)	O	Single value, Wildcard, Universal
Template Identifier	(0040,DB00)	O	Single value, Wildcard, Universal
Completion Flag	(0040,A491)	O	Single value, Wildcard, Universal
Verification Flag	(0040,A493)	O	Single value, Wildcard, Universal
Verifying Observer Sequence	(0040,A073)	O	Sequence matching
>Verifying Organization	(0040,A027)	O	Single value, Wildcard, Universal

Attribute Name	Tag	Usage SCU	Matching
>Verifying DateTime	(0040,A030)	O	Single value, Range, Universal
>Verifying Observer Name	(0040,A075)	O	Single value, Wildcard, Universal
>Verifying Observer Identification Code Sequence	(0040,A088)	O	Sequence matching
>>Code Value	(0008,0100)	O	Single value, Wildcard, Universal
>>Coding Scheme Designator	(0008,0102)	O	Single value, Wildcard, Universal
>>Coding Scheme Version	(0008,0103)	O	Single value, Wildcard, Universal
>>Code Meaning	(0008,0104)	O	Single value, Wildcard, Universal

5.7.4.1.6 Patient/Study Only Information Model

Attribute Name	Tag	Usage SCU	Matching
Patient Level			
Patient Name	(0010,0010)	R	Single value, Wildcard, Universal
Patient ID	(0010,0020)	U	Single value, Wildcard, Universal
Patient's Birth Date	(0010,0030)	O	Single value, Range, Universal
Patient's Birth Time	(0010,0032)	O	Single value, Range, Universal
Patient's Sex	(0010,0040)	O	Single value, Wildcard, Universal
Ethnic Group	(0010,2160)	O	Single value, Wildcard, Universal
Patient Comments	(0010,4000)	O	Wildcard, Universal
Number of Patient related Studies	(0020,1200)	O	Universal
Number of Patient related Series	(0020,1202)	O	Universal
Number of Patient related Instances	(0020,1204)	O	Universal
Study Level			
Study Instance UID	(0020,000D)	U	Single value, List of UIDs
Study ID	(0020,0010)	R	Single value, Wildcard, Universal
Study Date	(0008,0020)	R	Single value, Range, Universal
Study Time	(0008,0030)	R	Single value, Range, Universal
Accession Number	(0008,0050)	R	Single value, Wildcard, Universal
Referring Physician's Name	(0008,0090)	O	Single value, Wildcard, Universal
Study Description	(0008,1030)	O	Single value, Wildcard, Universal
Admitting Diagnosis Description	(0008,1080)	O	Single value, Wildcard, Universal
Patient's Age	(0010,1010)	O	Single value, Wildcard, Universal
Patient's Size	(0010,1020)	O	Single value, Universal
Patient's Weight	(0010,1030)	O	Single value, Universal
Occupation	(0010,2180)	O	Single value, Wildcard, Universal
Additional Patient History	(0010,21B0)	O	Wildcard, Universal
Name of Physician reading the Study	(0008,1060)	O	Single value, Wildcard, Universal
Modalities in Study	(0008,0061)	O	Multiple values, Universal
Number of Study Related Series	(0020,1206)	O	Universal
Number of Study Related Instances	(0020,1208)	O	Universal

The Find SCP returns following status codes:

Service Status	Meaning	Protocol Codes	Related Fields
Refused	Out of Resources	A700	(0000,0902)
Failed	Identifier does not match SOP Class	A900	(0000,0901) (0000,0902)
	Unable to process	CXX	(0000,0901) (0000,0902)
Cancel	Matching terminated due to Cancel request	FE00	None
Success	Matching is complete - No final Identifier is supplied	0000	None
Pending	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys	FF00	Identifier
	Matches are continuing - Warning that one or more Optional Keys were not supported for existence and/or matching for this identifier	FF01	Identifier

5.7.4.2 Real-World Activity - Move SCP

5.7.4.2.1 Associated Real-World Activity - Move SCP

The associated Real-World activity is to respond to retrieve requests to an SCU. The SCP supports the query model Patient Root, Study Root and Patient/Study Only. The Storage Service Class Conformance Statement describes the C-STORE service, which is generated by the C-MOVE service. Relational retrieve operation is NOT supported.

Multiple C-MOVE requests over the same association are NOT supported.

5.7.4.2.2 Accepted Presentation Contexts - Move SCP

The ACUSON S2000 system DICOM application will accept Presentation Contexts as shown in the following table:

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Patient Root Query/Retrieve Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
Study Root Query/Retrieve Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
Patient/Study Only Query/Retrieve Model – MOVE	1.2.840.10008.5.1.4.1.2.3.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None

Note: The order of preference for accepting Transfer Syntaxes is: 1. Explict VR Little Endian, 2. Explicit VR Big Endian, 3. Implicit VR Little Endian.

5.7.4.2.3 SOP Specific Conformance - Move SCP

At association establishment the C-MOVE presentation context shall be negotiated. STORE sub-operations is done on a different association, specified in the C-MOVE request, transfer images to a remote SCP of the Storage Service Class. Relational retrieve operation NOT supported.

All unique keys have to be supplied according to the selected Query/Retrieve Level. The tables in the C-FIND SCP section will give information about “U” marked key attributes.

The Move SCP returns following status codes:

Service Status	Meaning	Protocol Codes	Related Fields
Refused	Out of Resources	A700	(0000,0902)
Failed	Identifier does not match SOP Class	A900	(0000,0901) (0000,0902)
	Unable to process	CXX	(0000,0901) (0000,0902)
Cancel	Matching terminated due to Cancel request	FE00	None
Success	Matching is complete - No final Identifier is sup-plied	0000	None
Pending	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys	FF00	Identifier
	Matches are continuing - Warning that one or more Optional Keys were not supported for existence and/or matching for this identifier	FF01	Identifier

6.0 Communication Profiles

All ACUSON S2000 system application entities utilize the DICOM 3.0 TCP/IP communication support as defined in PS3.8 (Part 8) of the DICOM 3.0 Standard.

6.1 TCP/IP Stack Supported

Each process inherits its TCP/IP stack from the ACUSON S2000™’s operating system TCP/IP stack. Port number 104 is used for DICOM communication with the ACUSON S2000 system.

6.1.1 Physical Media Supported

Standard representations of IEEE 802.3 (10 Base-T and 100 Base-T is supported).

7.0 Extensions/Specializations/Privatizations

7.1 Standard extended/specialized/private Syntaxes

The ACUSON S2000 includes standard extended and private attributes in the US Image and US-MF Image IODs. All standard extended and private attributes are type 3. Support for these attributes by receiving SCPs is not required. See Table 12: US Image IOD Attributes and Table 15: US-MF Image IOD Attributes - 3D Volumetric Data for more information.

7.2 Private Transfer Syntaxes

None.

8.0 Configuration

ACUSON S2000 Networking and DICOM parameters can be configured through the ACUSON S2000 system Service configuration UI screens. The following configuration is supported:

- Network (local and remote)
- DICOM Store & Storage Commitment
- DICOM Print
- DICOM Worklist & MPPS

8.1 Basic System Configuration

The following system parameters can be configured via the ACUSON S2000 system System Presets Basic Menu screens. These parameters are configured in the form of pick lists and are available to the user when registering a patient or correcting patient data. When selected, these parameters are mapped to DICOM image attributes:

- Institution Name (0008, 0080)
- Operators Name (0008,1070)
- Referring Physician (0008,0090)
- Performing Physician (0008,1050)
- Requesting Physician (0032,1032)

8.2 DICOM Network Configuration

DICOM and networking parameters can be configured for both the local ACUSON S2000 system device and remote DICOM Service Class Providers through the Local Service Configuration User Interface or the DICOM Configuration UI.

8.2.1 Local Host - TCP/IP and General

The ACUSON S2000 local network parameters are configurable. The following network parameters can be configured for ACUSON S2000 system device:

- Host Name
- IP address
- Network IP mask
- Router/Gateway IP addresses
- DICOM Storage, Print and HIS/RIS SCU Application Entity Titles

8.3 DICOM Storage Configuration

Remote DICOM Storage and Storage Commitment Service Class Providers are configured through the DICOM - Network Nodes Configuration menu. The following parameters can be configured for each device:

- Host name
- IP address
- AET - Application Entity Title
- Port number

- Proposed transfer syntaxes - (ILE, ELE, EBE, JPEG Lossy, JPEG Lossless)
- Storage Commitment Results in same association as Storage Commitment Request.
- Storage Commitment Results time-out

8.4 DICOM HIS/RIS Configuration

Remote DICOM Worklist and Modality Performed Procedure Step Service Class Providers are configured through the DICOM - HIS/RIS Configuration menu. The following parameters can be configured for each Worklist/MPPS server:

- Host name
- IP address
- AET - Application Entity Title
- Port number
- Query waiting time (in seconds)
- Maximum number of matching results
- Automatic Worklist query interval (in minutes)

8.5 DICOM Print Configuration

For each DICOM Print server, the following data is configurable by the user using the Hardcopy Devices page of the Service User Interface. The user can change the page layout and the destination printer at any time during the operation of the ACUSON S2000 system. The effect of changing parameters of the DICOM Print server will be seen at the next film sheet. The current film sheet is not affected by changing these parameters.

Table 54: User Configurable Printer Parameters

Parameter	Description
Host name	
IP Address	
AE Title	Application Entity Title
Port number	
Color Appearance	Color or monochrome
Print Priority	HIGH= Urgent
Medium Type	CLEAR FILM, BLUE FILM, and Paper
Film Destination	MAGAZINE, PROCESSOR
Max. Density	Used to define the Black value - printer specific
Min. Density	Used to define the White value - printer specific
Transformation	replicate, bilinear, cubic, none
Smoothing	0, 2, 3, 4
Background	Black or White

8.6 “Print/Store” Key Configuration

The ACUSON S2000 system user can configure “Print/Store” hard keys to “Output Device” mapping through the System Presets - Print/Store Configuration menu. Images are acquired and sent to the assigned device when the user presses the associated key. The following configuration is supported.

8.6.1 Multiple Destinations - Auto Transfer

The ACUSON S2000 system “Print/Store” keys may be individually configured to transfer images to multiple DICOM Storage devices with a single key press. The system can be configured to automatically transfer images during the exam (with each Print/Store key press) or at the end of the exam (with an End Exam button press or a New Patient or Study). Configuration is on a per destination storage SCP basis.

8.6.2 Overlay or Burned in graphics

By default the ACUSON S2000 system system burns all text and graphics into the image pixel data. Alternatively, the ACUSON S2000 system may be configured to store image text and graphics using the DICOM Overlay module.

8.6.3 Secondary Capture Image Storage SOP Class

By default the ACUSON S2000 system system stores all static images to the local database using the Ultrasound Image Storage SOP Class. The ACUSON S2000 system may be configured to store all static images as Secondary Capture (Secondary Capture Image Storage SOP Class). This is done to allow image transfer to remote Storage SCPs that do not support the Ultrasound Image Storage SOP Class.

8.6.4 Auto Retry

Auto retry allows images to be automatically resent to destination Storage SCP devices when certain failures have occurred, or if the destination device is offline. The user can configure the retry interval (5 - 60 minutes) and the maximum number of retries (0 - 512). Auto Retry is configured through the Advanced - Transfer Configuration Menu. These are global setting and apply to all configured Storage SCP devices.

8.6.5 Compression

The user may configure the desired compression type (transfer syntax) for image transfer through the Advanced - Transfer Configuration Menu. Configuration is on a per Storage SCP device basis. Choices are:

- None (uses preferred ELE, ILE, EBE transfer syntax)
- JPEG Lossless (Non-Hierarchical, First-Order Prediction - UID = 1.2.840.10008.1.2.4.70)
- JPEG Lossy (JPEG Baseline, Process 1 - UID = 1.2.840.10008.1.2.4.50)

When JPEG Lossy is selected the use can also enter a compression Quality Factor, in percent.

Note: JPEG Quality factor below 100% may lead to insufficient diagnostic quality of transferred image.

8.6.6 Print Routing - Auto Transfer

The ACUSON S2000 system “Print/Store” keys may be individually configured to transfer images to DICOM Printers, or Local OEM Printers. The “Print/Store” keys may also be individually configured to automatically route images to either a B/W or Color printer based on image content. Routing is determined by the following image types:

1. **B&W—**The image only contains only B&W (grayscale) data.
2. **Color Doppler—**The image contains Color Doppler data.
3. **Tinted—**The image contains only B&W (grayscale) data that is pseudo color tinted.
4. **2D Ref.—**The 2D reference image contains Color Doppler data.
5. **Misc.—**Miscellaneous images. This includes GUI screen captures, external video captures such as VCR, and image review screens containing multiple images.

The user assigns the desired network grayscale or color printer or print server using the “Print/ Store” Configuration presets function. Print media size, format and orientation for the selected Printer device can also be configured through the “Print/Store” Presets function.

9.0 Media Storage

The ACUSON S2000 system is a device that generates ultrasound images that can be saved to CD-R (CD-Recordable) and DVD media using DICOM standard protocols and definitions. The applications described refer to the ACUSON S2000 system DICOM off-line media storage implementation acting as FSC for the specific application profiles and the related SOP Class instances. The ACUSON S2000 system acts as a File Set Reader and Updater only for discs that were created on an ACUSON S2000 system.

9.1 Implementation Model

ACUSON S2000 system users can store images directly on the system hard disk.

9.2 Application Data Flow Diagram

Figure 10: illustrates the ACUSON S2000 system’s Application Entity (AE) Data Flow Diagram. All relationships between user invoked activities and the associated real-world activities provided by the DICOM archive application are depicted.

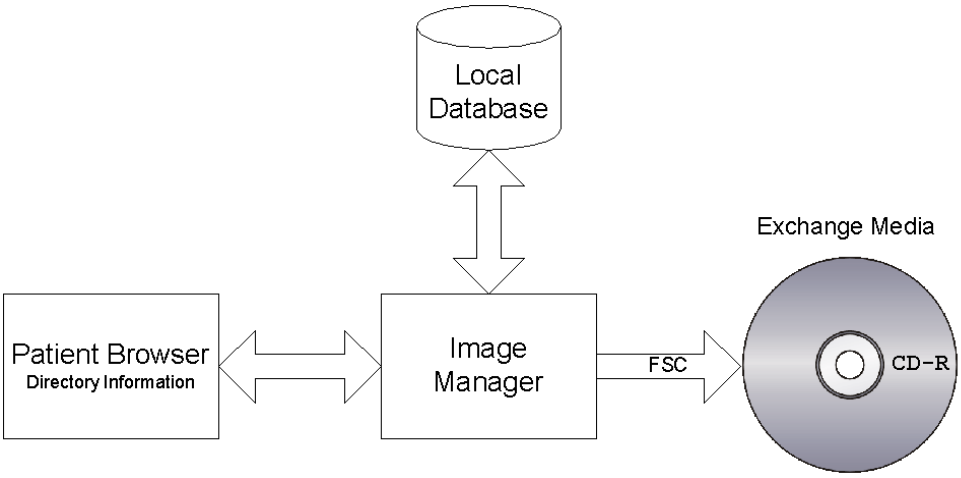

Figure 10: Media Storage Application Data Flow Diagram

10.0 Media Storage AE Functional Definition

The ACUSON S2000 DICOM offline media storage application consists of the DICOM Image Manager application entity serving all interfaces to access offline media. The DICOM application is capable of:

- Creating a new File set onto an unwritten medium (FSC)
- Updating an existing File set by writing new SOP Instances onto the medium.
- Reading the File set’s DICOMDIR and displaying the information.
- Copying SOP Instances from the medium onto local storage.

10.1 Real-World Activities for Media Storage

10.1.1 Browse Directory Information—Real World Activity

The ACUSON S2000 system application entity is capable of browsing CD/DVD DICOM Exchange media and displaying the contents of the DICOMDIR.

10.1.2 Import into Local Storage—Real-World Activity

The S2000 application entity acts as a FSR using the interchange option when requested to import SOP Instances from the CD/DVD media into local storage.

The SOP Instance selected from the media directory will be copied into the local storage.

10.1.3 Export to Local Archive Media—Real-World Activity

The ACUSON S2000 system application acts as a FSC (media not initialized) using the interchange option when requested to copy SOP Instances from the local database to the local archive media (CD/DVD).

10.1.4 Sequencing of Real World Activities

The DICOM Archive application will not perform updates before the Directory information of the DICOMDIR is completely read.

10.2 AE Specifications

10.2.1 ACUSON S2000 system Media Storage AE Specification

The ACUSON S2000 system AE provides conformance to the following DICOM SOP Classes as an FSC. The following specifications apply to the AE as depicted in Figure 10: .

When configuring an uncompressed Transfer Syntax, the STD-US and STD-GEN application profile classes will be extended to store instances of the following SOP classes in compressed format.

Table 55: Application profiles, Activities, and Roles for DICOM Exchange Media

Application Profiles Supported	Real World Activity	Role	SC Option
STD-GEN-CDR STD-US-SC-MF-CDR STD-US-ID-MF-CDR	Create CD-R	FSC †	Interchange
	Update CD-R	n/a †	Interchange
	Display Directory	n/a †	Interchange
	Copy to Local Storage	n/a †	Interchange

† The ACUSON S2000 system acts as a File Set Reader (FSR) and File Set Updater (FSU) for CD/DVD discs that were created on an ACUSON S2000 system.

10.2.2 File Meta Information Options

The Implementation Class UID is:

- “1.3.12.2.1107.5.9.20000101”

and an Implementation Version Name of

- “SIEMENS_ SWFSYNGO”.

10.3 Media Storage Application Profile

10.3.1 DICOMDIR keys

The DICOMDIR file will contain the following attributes for the levels Patient - Study - Series - Image (valid for all Application profiles described in this section).

Table 56: DICOMDIR Keys

Attribute Name	Tag	Type	Notes
File-Set Identification			
File-set ID	(0004,1130)	2	Volume label of media
Directory Information			
Offset of the First Directory Record of the Root Directory Entry	(0004,1200)	1	
Offset of the Last Directory Record of the Root Directory Entity	(0004,1202)	1	
File-set Consistency Flag	(0004,1212)	1	0000H
Directory Record Sequence	(0004,1220)	2	
> Offset of the Next Directory Record	(0004,1400)	1C	
> Record In-use flag	(0004,1410)	1C	FFFFH
> Offset of Referenced Lower-Level Directory Entity	(0004,1420)	1C	
> Directory Record Type	(0004,1430)	1C	PATIENT, STUDY, SERIES, IMAGE
> Referenced File ID	(0004,1500)	1C	contains the filename on media for the Directory Records of Type IMAGE
> Referenced SOP Class UID in File	(0004,1510)	1C	for the Directory Records of Type IMAGE
> Referenced SOP Instance UID in File	(0004,1511)	1C	for the Directory Records of Type IMAGE
> Referenced Transfer Syntax UID in File	(0004,1512)	1C	for the Directory Records of Type IMAGE
> Record Selection Keys	see below		
Patient Keys			**Directory Record Type PATIENT**
Specific Character Set	(0008,0005)	1C	
Patient's Name	(0010,0010)	2	
Patient ID	(0010,0020)	1	
Date Of Birth	(0010,0030)	3	
Patient's Sex	(0010,0040)	3	
Study Keys			**Directory Record Type STUDY**
Specific Character Set	(0008,0005)	1C	
Study Date	(0008,0020)	1	
Study Time	(0008,0030)	1	
Accession Number	(0008,0050)	2	
Study Description	(0008,1030)	2	
Study Instance UID	(0020,000D)	1C	
Study ID	(0020,0010)	1	Will be generated automatically, if not present. Value = "-"
Series Keys			**Directory Record Type SERIES**
Specific Character Set	(0008,0005)	1C	
Series Date	(0008,0021)	3	

Attribute Name	Tag	Type	Notes
Series Time	(0008,0031)	3	
Modality	(0008,0060)	1	
Institution name	(0008,0080)	3	
Institution Address	(0008,0081)	3	
Series Description	(0008,103E)	3	
Performing Physician	(0008,1050)	3	
Series Instance UID	(0020,000E)	1	
Series Number	(0020,0011)	1	
Image Keys			**Directory Record Type IMAGE**
Specific Character Set	(0008,0005)	1C	
Image Type	(0008,0008)	3	
SOP Class UID	(0008,0016)	3	
SOP Instance UID	(0008,0018)	3	
Image Date	(0008,0023)	3	
Image Time	(0008,0033)	3	
Image Number	(0020,0013)	1	
Rows	(0028,0010)	3	
Columns	(0028,0011)	3	
Icon Image Sequence	(0088,0200)	3	
> Samples per Pixel	(0028,0002)		1
> Photometric Interpretation	(0028,0004)		MONOCHROME2 or PALETTE COLOR
> Rows	(0028,0010)		64
> Columns	(0028,0011)		64
> Bits Allocated	(0028,0100)		8
> Bits Stored	(0028,0101)		8
> High Bit	(0028,0102)		7
> Pixel Representation	(0028,0103)		0 (unsigned)
> Pixel Data	(7FE0,0010)		Icon Image pixel data
SR Document Keys			**Directory Record Type SR Document**
Specific Character Set	(0008,0005)	1C	
Image Date	(0008,0023)	1	
Image Time	(0008,0033)	1	
Image Number	(0020,0013)	1	
Concept Name Code Sequence	(0040,A043)	1	
> Code Value	(0008,0100)	1C	One of the following combinations: 125000, DCM, OB-GYN Ultrasound Procedure Report 125001, DCM, Vascular Ultrasound Procedure Report 125200, DCM, Adult Echocardiography Procedure Report
> Coding Scheme Designator	(0008,0102)	1C	
> Code Meaning	(0008,0104)	1C	
Completion Flag	(0040,A491)	1	PARTIAL
Verification Flag	(0040,A493)	1	UNVERIFIED

10.3.2 Compliance to STD-GEN-CDR

The ACUSON S2000 conforms to the STD-GEN-CDR profile. The following SOP Classes will be supported as an FSC.

Table 57: STD-GEN-CDR Supported SOP Classes

IOD	SOP Class UID	Transfer Syntax and UID	FSC	FSR	FSU
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Explicit VR Little Endian	Yes	No †	No †

10.3.3 Compliance to STD-US-SC-MF-CDR

For media conforming to the STD-US-SC-MF-CDR profiles the following SOP Classes and transfer syntaxes will be supported as an FSC.

Table 58: STD-US-SC-MF-CDR Supported SOP Classes

IOD	SOP Class UID	Transfer Syntax and UID	FSC	FSR	FSU
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Explicit VR Little Endian 1.2.840.10008.1.2.1 JPEG Lossy (Baseline) 1.2.840.10008.1.2.4.50	Yes	No †	No †
Ultrasound Multi-frame Image Storage (Clips)	1.2.840.10008.5.1.4.1.1.3.1	JPEG Lossy (Baseline) 1.2.840.10008.1.2.4.50	Yes	No †	No †

† The ACUSON S2000 system acts as a File Set Reader (FSR) and File Set Updater (FSU) only for CD-R discs that were created on an ACUSON S2000 system.

The following Photometric Interpretations are supported by FSC:

- RGB - Ultrasound Image Storage only
- YBR_FULL_422 - Ultrasound Multi-frame Image Storage (Clips) only

Note: The ACUSON S2000 system stores clips locally using JPEG Lossy (Baseline) compression and only has access to the pixel data in lossy compressed form. Conversion to other transfer syntaxes is not supported.

10.3.4 Compliance to STD-US-ID-MF-CDR

For media conforming to the STD-US-ID-MF-CDR profiles the following SOP Classes and transfer syntaxes will be supported as an FSC.

Table 59: STD-US-ID-MF-CDR Supported SOP Classes

IOD	SOP Class UID	Transfer Syntax and UID	FSC	FSR	FSU
Ultrasound Multi-frame Image Storage (3D volumetric data sets)	1.2.840.10008.5.1.4.1.1.3.1	Explicit VR Little Endian 1.2.840.10008.1.2.1 JPEG Lossy (Baseline) 1.2.840.10008.1.2.4.50	Yes	No †	No †

† The ACUSON S2000 system acts as a File Set Reader (FSR) and File Set Updater (FSU) only for CD-R discs that were created on a ACUSON S2000 system.

The following Photometric Interpretations are supported by FSC:

- MONOCHROME2

Note: The Ultrasound Multi-frame Image Storage SOP is used to transfer ACUSON S2000 system Ultrasound 3D volumetric data sets. Each frame represents a single slice from the 3D volume.

10.4 Augmented and Private Profiles

10.4.1 Augmented Application Profiles

When configuring a compressed Transfer Syntax the STD-US and STD-GEN application profile classes will be extended to store instances of the following SOP classes in compressed format.

Table 60: Augmented Application profiles, Activities, and Roles for DICOM Exchange Media

Application Profiles Supported	Real World Activity	Role	SC Option
AUG-GEN-CDR AUG-US-SC-MF-CDR AUG-US-ID-MF-CDR	Create CD-R	FSC †	Interchange
	Update CD-R	n/a †	Interchange
	Display Directory	n/a †	Interchange
	Copy to Local Storage	n/a †	Interchange

† The ACUSON S2000 system acts as a File Set Reader (FSR) and File Set Updater (FSU) only for CD-R and DVD discs that were created on an ACUSON S2000 system.

10.4.1.1 AUG-GEN-CDR, AUG-US-SC-MF-CDR, AUG-US-ID-MF-CDR

For media conforming to the AUG-GEN-CDR, AUG-US-SC-MF-CDR and AUG-US-ID-MF-CDR Profile the following SOP classes will be supported as an FSC.

Table 61: AUG-GEN-CDR, AUG-US-SC-MF-CDR and AUG-US-ID-MF-CDR Supported SOP Classes

Information Object Definitions	SOP Class UID	Transfer Syntax and UID	FSC	FSR	FSU
US-MF image (3D data set)	1.2.840.10008.5.1.4.1.1.3.1	JPEG Lossless Process 14 1.2.840.10008.1.2.4.70	Yes	No †	No †
US Image	1.2.840.10008.5.1.4.1.1.6.1	JPEG Lossless Process 14 1.2.840.10008.1.2.4.70	Yes	No †	No †
SC Image	1.2.840.10008.5.1.4.1.1.7	JPEG Lossless Process 14 1.2.840.10008.1.2.4.70	Yes	No †	No †
SC Image	1.2.840.10008.5.1.4.1.1.7	JPEG lossy (baseline) 1.2.840.10008.1.2.4.50	Yes	No †	No †
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	Explicit VR Little Endian 1.2.840.10008.1.2.1	Yes	No †	No †

† The ACUSON S2000 system acts as a File Set Reader (FSR) and File Set Updater (FSU) only for CD-R and DVD discs that were created on an ACUSON S2000 system.

10.4.2 Private Application Profiles

None.

10.5 Extensions, Specializations and Privatizations of SOP Classes and Transfer Syntaxes

None.

10.6 Configuration

10.6.1 AE Title Mapping

10.6.1.1 DICOM Media Storage AE Title

The DICOM Media Storage application (Image Manager) provides the application entity title: CsaImageManager

10.7 Support of Extended Character Sets

The ACUSON S2000 system system supports the ISO 8859 Latin 1 (ISO-IR 100) character set family and the same family with code extensions (ISO 2022 IR 100 Latin-1).

11.0 Appendix A: OB-GYN Structured Report Measurements

This appendix lists the DICOM Structured Report (SR) mappings used in the Obstetric and Gynecologic Structured Reports of ACUSON S2000 system SR files.

The mappings are organized in a manner similar to the DICOM SR Templates as described in PS 3.16-2008 of the DICOM Standard. The “Label” column identifies the on-screen report label associated with a measurement. All private code values use the Coding Scheme Designator “99SIEMENS”.

The OB-GYN Report mappings follow the DICOM SR Template TID 5000: OB-GYN Ultrasound Procedure Report, except where noted. Amniotic Sacs (for multiple fetuses), Ovaries, Follicles, Cysts, Bladder, and Maternal Kidney are private sections in this release.

For a single fetus, the Amniotic Sac Section and the Umbilical Artery in the Pelvic Vascular Section follow the DICOM Standard. For multiple fetuses, the Amniotic Sac section is a private section and the Umbilical Artery is in the Fetal Vascular Section because the DICOM Standard does not support multiple fetuses for these measurements. These sections are associated with the appropriate fetus.

Notation:

<L or R>	indicates that L or R is in the label name for Left or Right laterality
< … Author >	means additional author information is provided in a following subsection
[…]	is additional information about the label

11.1 Patient Characteristics

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Patient Characteristics	Container: Patient Characteristics (DCM, 121118)		
Indication	Comment (DCM, 121106)		
Height	Patient Height (LN, 8302-2)		
Weight	Patient Weight (LN, 29463-7)		
Gravida	Gravida (LN, 11996-6)		
Para	Para (LN, 11977-6)		
Aborta	Aborta (LN, 11612-9)		
Ectopics	Ectopic Pregnancies (LN, 33065-4)		
Blood pressure	Systolic Blood Pressure (SRT, F-008EC)		
	Diastolic Blood Pressure (SRT, F-008ED)		

11.2 OB-GYN Summary

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
OB-GYN Summary	Container: Summary (DCM, 121111)		
Num of fetuses	Number of Fetuses (LN, 11878-6)		
Additional info	Comment (DCM, 121106)		
Comments	Comment (DCM, 121106)		
EDC	EDD (LN, 11778-8)		
LMP	LMP (LN, 11955-2)		
IVF	IVF Date (99SIEMENS, IVFDate)		

11.3 Fetus Summary

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Fetus Summary	Container: Fetus Summary (DCM, 125008)		
Clinical Age	Gestational Age (LN, 18185-9)		
EFW <Author Label>	Estimated Weight (LN, 11727-5)	<EFW Author Information>	
EFW <Author Label> +/-	2 Sigma Deviation of Population (DCM, 121417)		Estimated Weight (LN, 11727-5) <EFW Author Information>
EFW% <Author Label>	EFW percentile rank (LN, 11767-1)	<EFW% Author Information>	Estimated Weight (LN, 11727-5)
EFW <Author Label>	Gestational Age (LN, 18185-9)	<EFW Gestational Age Author Information>	Estimated Weight (LN, 11727-5)
Fetal HR	Fetal Heart Rate (LN, 11948-7)		
US Age <Author Label>	Composite Ultrasound Age (LN, 11888-5)	< US Age Author Information>	
US Age <Author Label> +/-	2 Sigma deviation of population (DCM, 121417)		Composite Ultrasound Age (LN, 11888-5) <US Age Author Information>
US EDC	EDC using Composite Age (99SIEMENS, CompositeEdc)		

11.3.1 US Age Authors

Author Label	Author Information	Comments
Average	Equation: Average Ultrasound Age (LN, 11884-4)	
Hadlock (BPD, HC, AC, FL)	Equation: Composite GA, Hadlock BPD, HC, AC, FL (99SIEMENS,CompGAHadlock1)	
Hadlock (BPD, HC, AC)	Equation: Composite GA, Hadlock BPD, HC, AC (99SIEMENS, CompGAHadlock2)	
Hadlock (HC, AC, FL)	Equation: Composite GA, Hadlock HC, AC, FL (99SIEMENS, CompGAHadlock3)	

Author Label	Author Information	Comments
Hadlock (BPD, HC, FL)	Equation: Composite GA, Hadlock BPD, HC, FL (99SIEMENS, CompGAHadlock4)	
Hadlock (BPD, AC, FL)	Equation: Composite GA, Hadlock BPD, AC, FL (99SIEMENS, CompGAHadlock5)	
Hadlock (AC, FL)	Equation: Composite GA, Hadlock AC, FL (99SIEMENS, CompGAHadlock6)	
Hadlock (HC, FL)	Equation: Composite GA, Hadlock HC, FL (99SIEMENS, CompGAHadlock7)	
Hadlock (HC, AC)	Equation: Composite GA, Hadlock HC, AC (99SIEMENS, CompGAHadlock8)	
Hadlock (BPD, FL)	Equation: Composite GA, Hadlock BPD, FL (99SIEMENS, CompGAHadlock9)	
Hadlock (BPD, HC)	Equation: Composite GA, Hadlock BPD, HC (99SIEMENS, CompGAHadlock10)	
Hadlock (BPD, AC)	Equation: Composite GA, Hadlock BPD, AC (99SIEMENS, CompGAHadlock11)	

11.3.2 EFW Authors

Author Label	Author Information	Comments
Hadlock (AC, FL)	Equation: EFW by AC, FL, Hadlock 1985 (LN, 11751-5)	
Shepard (BPD, AC)	Equation: EFW by AC, BPD, Shepard 1982 (LN, 11739-0)	
Hadlock (BPD, AC, FL)	Equation: EFW by AC, BPD, FL, Hadlock 1985 (LN, 11735-8)	
Hadlock (BPD, HC, AC, FL)	Equation: EFW by AC, BPD, FL, HC, Hadlock 1985 (LN, 11732-5)	
Hadlock (HC, AC, FL)	Equation: EFW by AC, FL, HC, Hadlock 1985 (LN, 11746-5)	
JSUM (BPD, AC, FL)	Equation: EFW by BPD, AC, FL, JSUM (99SIEMENS, EFWJSUMBpdAcFl)	No associated “2 Sigma Deviation of Population” value.
JSUM (BPD, APAD, TAD, FL)	Equation: EFW by BPD, APAD, TAD, FL, JSUM (99SIEMENS, EFWJSUMBpdApad)	No associated “2 Sigma Deviation of Population” value.
Merz (BPD, AC)	Equation: EFW by BPD, AC, Merz (99SIEMENS, EFWMerzBpdAc)	
Tokyo (BPD, APAD, TAD, FL)	Equation: EFW by BPD, APAD, TAD, FL, Tokyo 1987 (LN, 33144-7)	No associated “2 Sigma Deviation of Population” value.
Osaka (BPD, FTA, FL)	Equation: EFW by BPD, FTA, FL, Osaka 1990 (LN, 33140-5)	No associated “2 Sigma Deviation of Population” value.

11.3.3 EFW% Authors

Author Label	EFW Growth Author Information	Comments
Hadlock	Equation: FWP by GA, Hadlock 1991 (LN, 33162-9)	
Jeanty	Equation: FWP by GA, Jeanty (99SIEMENS, GCEFWJeanty)	
JSUM	Equation: FWP by GA, JSUM (99SIEMENS, GCEFWJSUM)	
Osaka	Equation: FWP by GA, Osaka (99SIEMENS, GCEFWOsaka)	
Tokyo	Equation: FWP by GA, Tokyo (99SIEMENS, GCEFWTokyo)	
Williams	Equation: FWP by GA, Williams 1982 (LN, 33184-3)	

Author Label	EFW Growth Author Information	Comments
Yarkoni	Equation: FWP by GA, Yarkoni (99SIEMENS, GCEFWYarkoni)	

11.3.4 EFW Gestational Age Authors

Author Label	EFW Author Information	Comments
JSUM	Table: EFW GA JSUM (99SIEMENS, EFWGAJSUM)	No associated “2 Sigma Deviation of Population” value.
Osaka	Table: EFW GA Osaka (99SIEMENS, EFWGAOsaka)	No associated “2 Sigma Deviation of Population” value.
Tokyo	Table: EFW GA Tokyo (99SIEMENS, EFWGATokyo)	No associated “2 Sigma Deviation of Population” value.

11.4 Fetal Biometry Ratios

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Fetal Biometry Ratios	Container: Fetal Biometry Ratios (DCM, 125001)		
CI Ratio	Cephalic Index (LN, 11823-2)		
CI Range High	Normal Range Upper Limit (SRT, R-0038B)		Cephalic Index (LN, 11823-2)
CI Range Low	Normal Range Lower Limit (SRT, R-10041)		Cephalic Index (LN, 11823-2)
FL/AC Ratio	FL/AC (LN, 11871-1)		
FL/AC Range High	Normal Range Upper Limit (SRT, R-0038B)		FL/AC (LN, 11871-1)
FL/AC Range Low	Normal Range Lower Limit (SRT, R-10041)		FL/AC (LN, 11871-1)
FL/BPD Ratio	FL/BPD (LN, 11872-9)		
FL/BPD Range High	Normal Range Upper Limit (SRT, R-0038B)		FL/BPD (LN, 11872-9)
FL/BPD Range Low	Normal Range Lower Limit (SRT, R-10041)		FL/BPD (LN, 11872-9)
FL/HC Ratio	FL/HC (LN, 11873-7)		
FL/HC Range High	Normal Range Upper Limit (SRT, R-0038B)		FL/HC (LN, 11873-7)
FL/HC Range Low	Normal Range Lower Limit (SRT, R-10041)		FL/HC (LN, 11873-7)
HA/TA	HA/TA (99SIEMENS, RatioHATA)		
HC/AC Ratio	HC/AC (LN, 11947-9)		
HC/AC Range High	Normal Range Upper Limit (SRT, R-0038B)		HC/AC (LN, 11947-9)
HC/AC Range Low	Normal Range Lower Limit (SRT, R-10041)		HC/AC (LN, 11947-9)
LVW/HW	LVW/HW (99SIEMENS, RatioLVWHW)		
LVW/HW Range High	Normal Range Upper Limit (SRT, R-0038B)		LVW/HW (99SIEMENS, RatioLVWHW)
LVW/HW Range Low	Normal Range Lower Limit (SRT, R-10041)		LVW/HW (99SIEMENS, RatioLVWHW)
TCD/AC	TCD/AC (99SIEMENS, RatioTCDAC)		
TCD/AC Range High	Normal Range Upper Limit (SRT, R-0038B)		TCD/AC (99SIEMENS, RatioTCDAC)
TCD/AC Range Low	Normal Range Lower Limit (SRT, R-10041)		TCD/AC (99SIEMENS, RatioTCDAC)

11.5 Fetal Biometry Measurements

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Fetal Biometry Measurements	Container: Fetal Biometry (DCM, 125002)		
AC	Abdominal Circumference (LN, 11979-2)		
AC <Gestational Age Author>	Gestational Age (LN, 18185-9)	<AC Gestational Age Author Information>	Abdominal Circumference (LN, 11979-2)
AC <Gestational Age Author> 2SD	2 Sigma Deviation of Population (DCM, 121417)		Gestational Age (LN, 18185-9) <AC Gestational Age Author Information> Abdominal Circumference (LN, 11979-2)
AC Mean	Abdominal Circumference (LN, 11979-2)	Derivation: Mean (SRT, R-00317)	
AC <Growth Author>	Growth Percentile Rank (DCM, 125012)	<AC Growth Author Information>	Abdominal Circumference (LN, 11979-2)
APAD	Anterior Posterior Abdominal Diameter (LN, 11818-2)		
APAD Mean	Anterior Posterior Abdominal Diameter (LN, 11818-2)	Derivation: Mean (SRT, R-00317)	
APAD x TAD	APAD*TAD (LN, 33191-8)		
APAD x TAD, Author: Tokyo	Gestational Age (LN, 18185-9)	Table: APAD*TAD, Tokyo (99SIEMENS, APADxTADGATokyo)	APAD*TAD (LN, 33191-8)
APAD x TAD Mean	APAD*TAD (LN, 33191-8)	Derivation: Mean (SRT, R-00317)	
APAD x TAD, Growth Author: Tokyo	Growth Percentile Rank (DCM, 125012)	Table: APAD TIMES TAD by GA Tokyo (99SIEMENS, GCAPADxTADTokyo)	APAD*TAD (LN, 33191-8)
BPD	Biparietal Diameter (LN, 11820-8)		
BPD <Gestational Age Author>	Gestational Age (LN, 18185-9)	<BPD Gestational Age Author Information>	Biparietal Diameter (LN, 11820-8)
BPD <Gestational Age Author> 2SD	2 Sigma Deviation of Population (DCM, 121417)		Gestational Age (LN, 18185-9) <BPD Gestational Age Author Information> Biparietal Diameter (LN, 11820-8)
BPD Mean	Biparietal Diameter (LN, 11820-8)	Derivation: Mean (SRT, R-00317)	
BPD <Growth Author>	Growth Percentile Rank (DCM, 125012)	<BPD Growth Author Information>	Biparietal Diameter (LN, 11820-8)
FL	Femur Length (LN, 11963-6)		
FL <Gestational Age Author>	Gestational Age (LN, 18185-9)	<FL Gestational Age Author Information>	Femur Length (LN, 11963-6)
FL <Gestational Age Author> 2SD	2 Sigma Deviation of Population (DCM, 121417)		Gestational Age (LN, 18185-9) <FL Gestational Age Author Information> Femur Length (LN, 11963-6)
FL Mean	Femur Length (LN, 11963-6)	Derivation: Mean (SRT, R-00317)	
FL <Growth Author>	Growth Percentile Rank (DCM, 125012)	<FL Growth Author Information>	Femur Length (LN, 11963-6)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Foot	Foot Length (LN, 11965-1)		
Foot, Author: Mercer	Gestational Age (LN, 18185-9)	Equation: Foot Length, Mercer 1987 (LN, 11926-3)	Foot Length (LN, 11965-1)
Foot, Author: Mercer, 2SD	2 Sigma Deviation of Population (DCM, 121417)		Gestational Age (LN, 18185-9) Equation: Foot Length, Mercer 1987 (LN, 11926-3) Foot Length (LN, 11965-1)
Foot Mean	Foot Length (LN, 11965-1)	Derivation: Mean (SRT, R-00317)	
FTA	Fetal Trunk Area (99SIEMENS, FTrunkArea)		
FTA, Author: Osaka	Gestational Age (LN, 18185-9)	Table: FTA, Osaka 1989 (LN, 33138-9)	Fetal Trunk Area (99SIEMENS, FTrunkArea)
FTA Mean	Fetal Trunk Area (99SIEMENS, FTrunkArea)	Derivation: Mean (SRT, R-00317)	
FTA, Growth Author: Osaka	Growth Percentile Rank (DCM, 125012)	Table: FTA by GA, Osaka (99SIEMENS, GCFTAOsaka)	Fetal Trunk Area (99SIEMENS, FTrunkArea)
HA	Heart Area (99SIEMENS, HeartArea)		
HC	Head Circumference (LN, 11984-2)		
HC <Gestational Age Author>	Gestational Age (LN, 18185-9)	<HC Gestational Age Author Information>	Head Circumference (LN, 11984-2)
HC <Gestational Age Author> 2SD	2 Sigma Deviation of Population (DCM, 121417)		Gestational Age (LN, 18185-9) <HC Gestational Age Author Information> Head Circumference (LN, 11984-2)
HC Mean	Head Circumference (LN, 11984-2)	Derivation: Mean (SRT, R-00317)	
HC <Growth Author>	Growth Percentile Rank (DCM, 125012)	<HC Growth Author Information>	Head Circumference (LN, 11984-2)
[Not shown]	Head Circumference, Major Diameter (99SIEMENS, HCMajorDiam)		
[Not shown]	Head Circumference, Major Diameter (99SIEMENS, HCMajorDiam)	Derivation: Mean (SRT, R-00317)	
[Not shown]	Head Circumference, Minor Diameter (99SIEMENS, HCMinorDiam)		
[Not shown]	Head Circumference, Minor Diameter (99SIEMENS, HCMinorDiam)	Derivation: Mean (SRT, R-00317)	
HC/AC, Growth Author: Campbell	Growth Percentile Rank (DCM, 125012)	Table: HC/AC by GA, Campbell 1977 (LN, 33182-7)	
OFD	Occipital Frontal Diameter (LN, 11851-3)		
OFD, Author: ASUM2000	Gestational Age (LN, 18185-9)	Equation: OFD, ASUM 2000 (LN, 33119-9)	Occipital Frontal Diameter (LN, 11851-3)
OFD Mean	Occipital Frontal Diameter (LN, 11851-3)	Derivation: Mean (SRT, R-00317)	
OFD, Growth Author: ASUM2000	Growth Percentile Rank (DCM, 125012)	Table: OFD by GA, ASUM 2000 (LN, 33178-5)	Occipital Frontal Diameter (LN, 11851-3)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
TA	Thoracic Area (LN, 33068-8)		
TA Mean	Thoracic Area (LN, 33068-8)	Derivation: Mean (SRT, R-00317)	
TAD	Transverse Abdominal Diameter (LN, 11862-0)		
TAD Mean	Transverse Abdominal Diameter (LN, 11862-0)	Derivation: Mean (SRT, R-00317)	
TAD, Growth Author: CFEF	Growth Percentile Rank (DCM, 125012)	Table: TAD by GA, CFEF (99SIEMENS, GCTADCFEF)	Transverse Abdominal Diameter (LN, 11862-0)
TC	Thoracic Circumference (LN, 11988-3)		
TC Mean	Thoracic Circumference (LN, 11988-3)	Derivation: Mean (SRT, R-00317)	
2D-Mode: L Kidney mm	Left Kidney Length (LN, 11834-9)		
2D-Mode: L Kidney Mean	Left Kidney Length (LN, 11834-9)	Derivation: Mean (SRT, R-00317)	
2D-Mode: R Kidney mm	Right Kidney Length (LN, 11836-4)		
2D-Mode: R Kidney Mean	Right Kidney Length (LN, 11836-4)	Derivation: Mean (SRT, R-00317)	
Volume: L Kidney V	Left Fetal Kidney Volume (99SIEMENS, LFKidneyVol)		
Volume: L Kidney Mean	Left Fetal Kidney Volume (99SIEMENS, LFKidneyVol)	Derivation: Mean (SRT, R-00317)	
Volume: L Kidney D1	Left Fetal Kidney Volume: Distance 1 (99SIEMENS, LFKidneyVolD1)		
Volume: L Kidney D2	Left Fetal Kidney Volume: Distance 2 (99SIEMENS, LFKidneyVolD2)		
Volume: L Kidney D3	Left Fetal Kidney Volume: Distance 3 (99SIEMENS, LFKidneyVolD3)		
Volume: R Kidney V	Right Fetal Kidney Volume (99SIEMENS, RFKidneyVol)		
Volume: R Kidney Mean	Right Fetal Kidney Volume (99SIEMENS, RFKidneyVol)	Derivation: Mean (SRT, R-00317)	
Volume: R Kidney D1	Right Fetal Kidney Volume: Distance 1 (99SIEMENS, RFKidneyVolD1)		
Volume: R Kidney D2	Right Fetal Kidney Volume: Distance 2 (99SIEMENS, RFKidneyVolD2)		
Volume: R Kidney D3	Right Fetal Kidney Volume: Distance 3 (99SIEMENS, RFKidneyVolD3)		

11.5.1 AC Gestational Age Authors

Author Label	AC Gestational Age Author Information	Comments
ASUM	Equation: AC GA ASUM (99SIEMENS, ACGAASUM)	No associated “2 Sigma Deviation of Population” value.
ASUM2000	Equation: AC, ASUM 2000 (LN, 33072-0)	No associated “2 Sigma Deviation of Population” value.
Hadlock	Equation: AC, Hadlock 1984 (LN, 11892-7)	
JSUM	Table: AC GA JSUM (99SIEMENS, ACGAJSUM)	
Lasser	Table: AC GA Lasser (99SIEMENS, ACGALasser)	
Merz	Table: AC GA Merz (99SIEMENS, ACGAMerz)	

11.5.2 AC Growth Authors

Author Label	AC Growth Author Information	Comments
ASUM	Equation: AC by GA, ASUM (99SIEMENS, GCACASUM)	
ASUM2000	Table: AC by GA, ASUM 2000 (LN, 33145-4)	
CFEF	Table: AC by GA, CFEF (99SIEMENS, GCACCFEF)	
Chitty	Equation: AC (measured) by GA, Chitty 1994 (LN, 33147-0)	
Deter	Equation: AC by GA, Deter (99SIEMENS, GCACDeter)	
Grumback	Table: AC by GA, Grumback (99SIEMENS, GCACGrumback)	
Hadlock	Equation: AC by GA, Hadlock 1984 (LN, 33146-2)	
Jeanty	Table: AC by GA, Jeanty (99SIEMENS, GCACJeanty)	
JSUM	Table: AC by GA, JSUM (99SIEMENS, GCACJSUM)	
Merz	Table: AC by GA, Merz 1988 (LN, 33148-8)	

11.5.3 BPD Gestational Age Authors

Author Label	BPD Gestational Age Author Information	Comments
ASUM	Table: BPD, ASUM 1989 (LN, 33079-5)	
ASUM2000	Equation: BPD GA ASUM2000 (99SIEMENS, BPDGAASUM2000)	No associated “2 Sigma Deviation of Population” value.
Hadlock	Equation: BPD, Hadlock 1984 (LN, 11902-4)	
Hansmann	Table: BPD, Hansmann 1986 (LN, 33538-0)	
JSUM	Table: BPD GA JSUM (99SIEMENS, BPDGAJSUM)	
Lasser	Table: BPD GA Lasser (99SIEMENS, BPDGALasser)	
Merz	Table: BPD GA Merz (99SIEMENS, BPDGAMerz)	
Osaka	Table: BPD, Osaka 1989 (LN, 33082-9)	No associated “2 Sigma Deviation of Population” value.
Rempen	Table: BPD, Rempen 1991 (LN, 33083-7)	
Tokyo	Table: BPD, Tokyo 1986 (LN, 33085-2)	No associated “2 Sigma Deviation of Population” value.

11.5.4 BPD Growth Authors

Author Label	BPD Growth Author Information	Comments
ASUM	Table: BPD by GA, ASUM (99SIEMENS, GCBPDASUM)	
ASUM2000	Table: BPD by GA, ASUM 2000 (LN, 33151-2)	
CFEF	Table: BPD by GA, CFEF (99SIEMENS, GCBPDCFEF)	
Chitty (out-to-in)	Equation: BPD outer inner by GA, Chitty 1994 (LN, 33556-2)	
Chitty (out-to-out)	Equation: BPD outer outer by GA, Chitty 1994 (LN, 33152-0)	
Grumback	Table: BPD by GA, Grumback (99SIEMENS, GCBPDGrumback)	
Hadlock	Equation: BPD by GA, Hadlock 1984 (LN, 33198-3)	
Hansmann	Table: BPD by GA, Hansmann (99SIEMENS, GCBPDHansmann)	
JSUM	Table: BPD by GA, JSUM (99SIEMENS, GCBPDJSUM)	
Lasser	Equation: BPD by GA, Lasser (99SIEMENS, GCBPDLasser)	
Merz	Table: BPD by GA, Merz 1988 (LN, 33154-6)	
Osaka	Table: BPD by GA, Osaka (99SIEMENS, GCBPDOsaka)	
Rempen	Table: BPD by GA, Rempen 1991 (LN, 33155-3)	
Tokyo	Table: BPD by GA, Tokyo (99SIEMENS, GCBPDTokyo)	

11.5.5 FL Gestational Age Authors

Author Label	FL Gestational Age Author Information	Comments
ASUM	Equation: FL GA ASUM (99SIEMENS, FLGAASUM)	
ASUM2000	Equation: FL GA ASUM2000 (99SIEMENS, FLGAASUM2000)	No associated “2 Sigma Deviation of Population” value.
Hadlock	Equation: FL, Hadlock 1984 (LN, 11920-6)	
Jeanty	Equation: FL, Jeanty 1984 (LN, 11923-0)	
JSUM	Table: FL GA JSUM (99SIEMENS, FLGAJSUM)	
Merz	Table: FL, Merz 1988 (LN, 33542-2)	
Osaka	Table: FL, Osaka 1989 (LN, 33101-7)	No associated “2 Sigma Deviation of Population” value.
Tokyo	Table: FL, Tokyo 1986 (LN, 33103-3)	No associated “2 Sigma Deviation of Population” value.
Warda	Equation: FL GA Warda (99SIEMENS, FLGAWarda)	

11.5.6 FL Growth Authors

Author Label	FL Growth Author Information	Comments
ASUM	Equation: FL by GA, ASUM (99SIEMENS, GCFLASUM)	
ASUM2000	Table: FL by GA, ASUM 2000 (LN, 33165-2)	
CFEF	Table: FL by GA, CFEF (99SIEMENS, GCFLCFEF)	
Chitty	Equation: FL by GA, Chitty 1994 (LN, 33167-8)	

Author Label	FL Growth Author Information	Comments
Hadlock	Equation: FL by GA, Hadlock 1984 (LN, 33166-0)	
Jeanty	Equation: FL by GA, Jeanty 1982 (LN, 33168-6)	
JSUM	Table: FL by GA, JSUM (99SIEMENS, GCFLJSUM)	
Merz	Table: FL by GA, Merz 1988 (LN, 33169-4)	
Osaka	Table: FL by GA, Osaka (99SIEMENS, GCFLOsaka)	
Tokyo	Table: FL by GA, Tokyo (99SIEMENS, GCFLTokyo)	
Warda	Equation: FL by GA, Warda (99SIEMENS, GCFLWarda)	

11.5.7 HC Gestational Age Authors

Author Label	HC Gestational Age Author Information	Comments
ASUM2000	Equation: HC, ASUM 2000 (LN, 33109-0)	No associated “2 Sigma Deviation of Population” value.
Hadlock	Equation: HC, Hadlock 1984 (LN, 11932-1)	
Hansmann	Table: HC, Hansmann 1986 (LN, 33543-0)	
Lasser	Table: HC GA Lasser (99SIEMENS, HCGALasser)	
Merz	Table: HC, Merz 1988 (LN, 33115-7)	

11.5.8 HC Growth Authors

Author Label	HC Growth Author Information	Comments
ASUM	Equation: HC by GA, ASUM (99SIEMENS, GCHCASUM)	
ASUM2000	Table: HC by GA, ASUM 2000 (LN, 33172-8)	
CFEF	Table: HC by GA, CFEF (99SIEMENS, GCHCCFEF)	
Chitty	Equation: HC derived by GA, Chitty 1994 (LN, 33174-4)	
Deter	Equation: HC by GA, Deter (99SIEMENS, GCHCDeter)	
Hadlock	Equation: HC by GA, Hadlock 1984 (LN, 33173-6)	
Hansmann	Table: HC by GA, Hansmann (99SIEMENS, GCHCHansmann)	
Merz	Table: HC by GA, Merz 1988 (LN, 33176-9)	

11.6 Fetal Long Bones Biometry Measurements

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Fetal Long Bones Biometry Measurements	Container: Fetal Long Bones (DCM, 125003)		
Clavicle	Clavicle Length (LN, 11962-8)		
Clavicle, Author: Yarkoni	Gestational Age (LN, 18185-9)	Equation: Clavicle Length, Yarkoni 1985 (LN, 33088-6)	Clavicle Length (LN, 11962-8)
Clavicle, Author: Yarkoni, 2SD	2 Sigma Deviation of Population (DCM, 121417)		Gestational Age (LN, 18185-9) Equation: Clavicle Length, Yarkoni 1985 (LN, 33088-6) Clavicle Length (LN, 11962-8)
Clavicle Mean	Clavicle Length (LN, 11962-8)	Derivation: Mean (SRT, R-00317)	
HL	Humerus Length (LN, 11966-9)		
HL <Gestational Age Author>	Gestational Age (LN, 18185-9)	<HL Gestational Age Author Information>	Humerus Length (LN, 11966-9)
HL <Gestational Age Author> 2SD	2 Sigma Deviation of Population (DCM, 121417)		Gestational Age (LN, 18185-9) <HL Gestational Age Author Information> Humerus Length (LN, 11966-9)
HL Mean	Humerus Length (LN, 11966-9)	Derivation: Mean (SRT, R-00317)	
HL <Growth Author>	Growth Percentile Rank (DCM, 125012)	<HL Growth Author Information>	Humerus Length (LN, 11966-9)
Radius	Radius Length (LN, 11967-7)		
Radius Mean	Radius Length (LN, 11967-7)	Derivation: Mean (SRT, R-00317)	
Tibia	Tibia Length (LN, 11968-5)		
Tibia, Author: Jeanty	Gestational Age (LN, 18185-9)	Equation: Tibia, Jeanty 1984 (LN, 11941-2)	Tibia Length (LN, 11968-5)
Tibia, Author: Jeanty, 2SD	2 Sigma Deviation of Population (DCM, 121417)		Gestational Age (LN, 18185-9) Equation: Tibia, Jeanty 1984 (LN, 11941-2) Tibia Length (LN, 11968-5)
Tibia Mean	Tibia Length (LN, 11968-5)	Derivation: Mean (SRT, R-00317)	
Ulna	Ulna Length (LN, 11969-3)		
Ulna, Author: Jeanty	Gestational Age (LN, 18185-9)	Equation: Ulna, Jeanty 1984 (LN, 11944-6)	Ulna Length (LN, 11969-3)
Ulna, Author: Jeanty, 2SD	2 Sigma Deviation of Population (DCM, 121417)		Gestational Age (LN, 18185-9) Equation: Ulna, Jeanty 1984 (LN, 11944-6) Ulna Length (LN, 11969-3)
Ulna Mean	Ulna Length (LN, 11969-3)	Derivation: Mean (SRT, R-00317)	

11.6.1 HL Gestational Age Authors

Author Label	HL Gestational Age Author Information	Comments
ASUM 2000	Equation: Humerus Length, ASUM 2000 (LN, 33116-5)	No associated “2 Sigma Deviation of Population” value.
Jeanty	Equation: Humerus, Jeanty 1984 (LN, 11936-2)	
Osaka	Table: Humerus Length, Osaka 1989 (LN, 33117-3)	No associated “2 Sigma Deviation of Population” value.

11.6.2 HL Growth Authors

Author Label	HL Growth Author Information	Comments
ASUM2000	Table: Humerus Length by GA, ASUM 2000 (LN, 33177-7)	
Jeanty	Equation: HL by GA, Jeanty (99SIEMENS, GCHLJeanty)	
Merz	Table: HL by GA, Merz (99SIEMENS, GCHLMerz)	
Osaka	Table: HL by GA, Osaka (99SIEMENS, GCHLOsaka)	

11.7 Fetal Cranium

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Fetal Cranium	Container: Fetal Cranium (DCM, 125004)		
Binoc D	Outer Orbital Diameter (LN, 11629-3)		
Binoc D <Gestational Age Author>	Gestational Age (LN, 18185-9)	<Binoc D Gestational Age Author Information>	Outer Orbital Diameter (LN, 11629-3)
Binoc D <Gestational Age Author> 2SD	2 Sigma Deviation of Population (DCM, 121417)		Gestational Age (LN, 18185-9) <Binoc D Gestational Age Author Information> Outer Orbital Diameter (LN, 11629-3)
Binoc D Mean	Outer Orbital Diameter (LN, 11629-3)	Derivation: Mean (SRT, R-00317)	
Cist Magna	Cisterna Magna (LN, 11860-4)		
Cist Magna Mean	Cisterna Magna (LN, 11860-4)	Derivation: Mean (SRT, R-00317)	
HW	Width of Hemisphere (LN, 12170-7)		
HW Mean	Width of Hemisphere (LN, 12170-7)	Derivation: Mean (SRT, R-00317)	
LVW	Lateral Ventrical Width (LN, 12171-5)		
LVW Mean	Lateral Ventrical Width (LN, 12171-5)	Derivation: Mean (SRT, R-00317)	
Nuchal Thick	Nuchal Fold Thickness (LN, 12146-7)		
Nuchal Thick Mean	Nuchal Fold Thickness (LN, 12146-7)	Derivation: Mean (SRT, R-00317)	
TCD	Trans Cerebellar Diameter (LN, 11863-8)		
TCD Mean	Trans Cerebellar Diameter (LN, 11863-8)	Derivation: Mean (SRT, R-00317)	

11.7.1 Binoc D Gestational Age Authors

Author Label	Binoc D Gestational Age Author Information	Comments
Jeanty	Table: Binoc D, Jeanty (99SIEMENS, BNGAJeanty)	
Tongsong	Equation: Binoc D, Tongsong (99SIEMENS, BNGATongsong)	

11.8 Amniotic Sac

[Note: For a single fetus]

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Amniotic Sac	Finding Site: Amniotic Sac (SRT, T-F1300)		
AFI Q1	First Quadrant Diameter (LN, 11624-4)		
AFI Q2	Second Quadrant Diameter (LN, 11626-9)		
AFI Q3	Third Quadrant Diameter (LN, 11625-1)		
AFI Q4	Fourth Quadrant Diameter (LN, 11623-6)		
AFI Sum	Amniotic Fluid Index (LN, 11627-7)		

11.9 Amniotic Sacs

[Note: AFI values appear in a private Amniotic Sacs section when there are multiple fetuses, one fetus per section.
Subject UID and Subject ID from *TID 1008 Subject Context, Fetus* are used to identify each fetus.]

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Amniotic Sacs	CONTAINER: Amniotic Sacs (99SIEMENS, Amniotic Sacs)		
AFI Q1	First Quadrant Diameter (LN, 11624-4)		
AFI Q2	Second Quadrant Diameter (LN, 11626-9)		
AFI Q3	Third Quadrant Diameter (LN, 11625-1)		
AFI Q4	Fourth Quadrant Diameter (LN, 11623-6)		
AFI Sum	Amniotic Fluid Index (LN, 11627-7)		

11.10 Early Gestation Biometry Measurements

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Early Gestation Biometry Measurements	Container: Early Gestation (DCM, 125009)		
CRL	Crown Rump Length (LN, 11957-8)		
CRL <Gestational Age Author>	Gestational Age (LN, 18185-9)	<CRL Gestational Age Author Information>	Crown Rump Length (LN, 11957-8)
CRL <Gestational Age Author> 2SD	2 Sigma Deviation of Population (DCM, 121417)		Gestational Age (LN, 18185-9) <CRL Gestational Age Author Information> Crown Rump Length (LN, 11957-8)
CRL Mean	Crown Rump Length (LN, 11957-8)	Derivation: Mean (SRT, R-00317)	
CRL <Growth Author>	Growth Percentile Rank (DCM, 125012)	<CRL Growth Author Information>	Crown Rump Length (LN, 11957-8)
GSD	Gestational Sac Diameter (LN, 11850-5)		
GSD <Gestational Age Author>	Gestational Age (LN, 18185-9)	<GSD Gestational Age Author Information>	Gestational Sac Diameter (LN, 11850-5)
GSD <Gestational Age Author> 2SD	2 Sigma Deviation of Population (DCM, 121417)		Gestational Age (LN, 18185-9) <GSD Gestational Age Author Information> Gestational Sac Diameter (LN, 11850-5)
GSD Mean	Gestational Sac Diameter (LN, 11850-5)	Derivation: Mean (SRT, R-00317)	
Yolk Sac	Yolk Sac Length (LN, 11816-6)		
Yolk Sac Mean	Yolk Sac Length (LN, 11816-6)	Derivation: Mean (SRT, R-00317)	

11.10.1 CRL Gestational Age Authors

Author Label	CRL Gestational Age Author Information	Comments
ASUM2000	Equation: CRL, ASUM 2000 (LN, 33090-2)	No associated “2 Sigma Deviation of Population” value.
Hadlock	Equation: CRL, Hadlock 1992 (LN, 11910-7)	
Hansmann	Table: CRL, Hansmann 1986 (LN, 33540-6)	
JSUM	Table: CRL GA JSUM (99SIEMENS, CRLGAJSUM)	
Lasser	Table: CRL GA Lasser (99SIEMENS, CRLGALasser)	
Osaka	Table: CRL, Osaka 1989 (LN, 33093-6)	No associated “2 Sigma Deviation of Population” value.
Rempen	Table: CRL, Rempen 1991 (LN, 33094-4)	
Robinson	Equation: CRL, Robinson 1975 (LN, 11914-9)	
Tokyo	Table: CRL, Tokyo 1986 (LN, 33096-9)	No associated “2 Sigma Deviation of Population” value.

11.10.2 CRL Growth Authors

Author Label	CRL Growth Author Information	Comments
ASUM2000	Table: CRL by GA, ASUM 2000 (LN, 33159-5)	
Hadlock	Equation: CRL by GA, Hadlock (99SIEMENS, GCCRLHadlock)	
Hansmann	Table: CRL by GA, Hansmann (99SIEMENS, GCCRLHansmann)	
JSUM	Table: CRL by GA, JSUM (99SIEMENS, GCCRLJSUM)	
Osaka	Table: CRL by GA, Osaka (99SIEMENS, GCCRLOsaka)	
Rempen	Table: CRL by GA, Rempen 1991 (LN, 33160-3)	
Robinson	Equation: CRL by GA, Robinson (99SIEMENS, GCCRLRobinson)	
Tokyo	Table: CRL by GA, Tokyo (99SIEMENS, GCCRLTokyo)	

11.10.3 GSD Gestational Age Authors

Author Label	GSD Gestational Age Author Information	Comments
Rempen	Table: GS, Rempen 1991 (LN, 11929-7)	
Tokyo	Table: GS, Tokyo 1986 (LN, 33108-2)	No associated “2 Sigma Deviation of Population” value.

11.11 Fetal Biophysical Profile

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Fetal Biophysical Profile	Container: Biophysical Profile (DCM, 125006)		
Amniotic Fluid	Amniotic Fluid Volume (LN, 11630-1)		
Fetal Breathing	Fetal Breathing (LN, 11632-7)		
Fetal Movements	Gross Body Movement (LN, 11631-9)		
Fetal Tone	Fetal Tone (LN, 11635-0)		
Score	Biophysical Profile Sum Score (LN, 11634-3)		

11.12 Pelvis and Uterus

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Pelvis and Uterus	Container: Pelvis and Uterus (DCM, 125011)		
Cervix Len	Cervix Length (LN, 11961-0)		
Cervix Len Mean	Cervix Length (LN, 11961-0)	Derivation: Mean (SRT, R-00317)	
Endomet	Endometrium Thickness (LN, 12145-9)		
Endomet Mean	Endometrium Thickness (LN, 12145-9)	Derivation: Mean (SRT, R-00317)	

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Uterus	Uterus Distance (99SIEMENS, UterusDist)		
Uterus Mean	Uterus Distance (99SIEMENS, UterusDist)	Derivation: Mean (SRT, R-00317)	

11.13 Fetal and Pelvic Vasculature

The measurements in this table apply to the vessels listed for Fetal Vasculature (section 11.13.1) and Pelvic Vasculature (section 11.13.2).

Label (Section: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Doppler: Angle	Doppler Angle Correction (99SIEMENS, DopAngleCor)	
Doppler: ED	End Diastolic Velocity (LN, 11653-3)	
Doppler: PI	Pulsatility Index (LN, 12008-9)	
Doppler: PS	Peak Systolic Velocity (LN, 11726-7)	
Doppler: RI	Resistivity Index (LN, 12023-8)	
Doppler: S/D	Systolic to Diastolic Velocity Ratio (LN, 12144-2)	
Doppler: TAV	Time Averaged Peak Velocity (LN, 11692-1)	
Acceleration: Acceleration	Acceleration Index (LN, 20167-3)	
Acceleration: Mean	Acceleration Index (LN, 20167-3)	Derivation: Mean (SRT, R-00317)
Acceleration: V1	Acceleration Velocity 1 (99SIEMENS, AccelVel1)	
Acceleration: V2	Acceleration Velocity 2 (99SIEMENS, AccelVel2)	
Acceleration: T	Acceleration Time (LN, 20168-1)	
Stenosis: %Stenosis [Area]	% Area Reduction (SRT, G-0371)	
Stenosis: Mean [Area]	% Area Reduction (SRT, G-0371)	Derivation: Mean (SRT, R-00317)
Stenosis: A1 Meas 1	Vessel Lumen Cross-Sectional Area (SRT, G-0366)	
Stenosis: A2 Meas 2	Vessel Lumen Cross-Sectional Area (SRT, G-0366)	
Stenosis: %Stenosis [Distance]	% Diameter Reduction (SRT, G-0372)	
Stenosis: Mean [Distance]	% Diameter Reduction (SRT, G-0372)	Derivation: Mean (SRT, R-00317)
Stenosis: D1 Meas 1	Vessel Lumen Diameter (SRT, G-0364)	
Stenosis: D2 Meas 2	Vessel Lumen Diameter (SRT, G-0364)	
Velocity: Vel	Velocity (99SIEMENS, Velocity)	
Velocity: Mean	Velocity (99SIEMENS, Velocity)	Derivation: Mean (SRT, R-00317)
Velocity: Angle	Velocity Angle Correction (99SIEMENS, VelAngleCor)	
Volume Flow: Volume Flow	Volume Flow (LN, 33878-0)	

Label (Section: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Volume Flow: Mean	Volume Flow (LN, 33878-0)	Derivation: Mean (SRT, R-00317)
Volume Flow: A	Volume Flow Area (99SIEMENS, VolFArea)	
Volume Flow: D	Volume Flow Distance (99SIEMENS, VolFDist)	
Volume Flow: TAMn	Volume Flow Time-Averaged Mean Velocity (99SIEMENS, VolFTAVmV)	
2D-Mode:	Distance (99SIEMENS, Distance)	
2D-Mode: Mean	Distance (99SIEMENS, Distance)	Derivation: Mean (SRT, R-00317)

11.13.1 Fetal Vasculature

[Note: Umbilical Artery (Umb A) measurements appear in this section when there are multiple fetuses.]

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Fetal Vasculature	Finding Site: Embryonic Vascular Structure (SRT, T-F6800)		
Fetal Ao	Location: Aorta (SRT, T-4200)		
L MCA	Location: Middle Cerebral Artery (SRT, T-45600)	Laterality: Left (SRT, G-A101)	
R MCA	Location: Middle Cerebral Artery (SRT, T-45600)	Laterality: Right (SRT, G-A100)	
Umb A	Location: Umbilical Artery (SRT, T-F1810)		

11.13.2 Pelvic Vasculature

[Note: Umbilical Artery (Umb A) measurements appear in this section when there is only one fetus.]

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Pelvic Vasculature	Finding Site: Pelvic Vascular Structure (SRT, T-D6007)		
Arcuate A	Location: Arcuate Artery (99SIEMENS, ArcuateArtery)		
L Ovarian A	Location: Ovarian Artery (SRT, T-46980)	Laterality: Left (SRT, G-A101)	
L Uterine A	Location: Uterine Artery (SRT, T-46820)	Laterality: Left (SRT, G-A101)	
R Ovarian A	Location: Ovarian Artery (SRT, T-46980)	Laterality: Right (SRT, G-A100)	
R Uterine A	Location: Uterine Artery (SRT, T-46820)	Laterality: Right (SRT, G-A100)	
Umb A	Location: Umbilical Artery (SRT, T-F1810)		

11.14 Private Section: Ovaries

Label (Section: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Ovaries	Container: Ovaries Section (99SIEMENS, Ovaries)		
2D-Mode: L Ovary	Left Ovary Distance (99SIEMENS, LovaryDist)		
2D-Mode: L Ovary Mean	Left Ovary Distance (99SIEMENS, LovaryDist)	Derivation: Mean (SRT, R-00317)	
2D-Mode: R Ovary	Right Ovary Distance (99SIEMENS, RovaryDist)		
2D-Mode: R Ovary Mean	Right Ovary Distance (99SIEMENS, RovaryDist)	Derivation: Mean (SRT, R-00317)	
Volume: L Ovary V	Left Ovary Volume (LN, 12164-0)		
Volume: L Ovary Mean	Left Ovary Volume (LN, 12164-0)	Derivation: Mean (SRT, R-00317)	
Volume: L Ovary D1	Left Ovary Volume: Distance 1 (99SIEMENS, LovaryVolD1)		
Volume: L Ovary D2	Left Ovary Volume: Distance 2 (99SIEMENS, LovaryVolD2)		
Volume: L Ovary D3	Left Ovary Volume: Distance 3 (99SIEMENS, LovaryVolD3)		
Volume: R Ovary V	Right Ovary Volume (LN, 12165-7)		
Volume: R Ovary Mean	Right Ovary Volume (LN, 12165-7)	Derivation: Mean (SRT, R-00317)	
Volume: R Ovary D1	Right Ovary Volume: Distance 1 (99SIEMENS, RovaryVolD1)		
Volume: R Ovary D2	Right Ovary Volume: Distance 2 (99SIEMENS, RovaryVolD2)		
Volume: R Ovary D3	Right Ovary Volume: Distance 3 (99SIEMENS, RovaryVolD3)		

11.15 Private Sections: Left Follicles and Right Follicles

Label <n> = 1..20	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Follicles	Container: Follicles Section (99SIEMENS, Follicles)	Laterality: Left (SRT, G-A101)	
L Follicle <n>	Follicle <n> Distance (99SIEMENS, Follicle<n>Dist)		
L Follicle <n> Mean	Follicle <n> Distance (99SIEMENS, Follicle<n>Dist)	Derivation: Mean (SRT, R-00317)	

Label <n> = 1..20	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Follicles	Container: Follicles Section (99SIEMENS, Follicles)	Laterality: Laterality: Right (SRT, G-A100)	
R Follicle <n>	Follicle <n> Distance (99SIEMENS, Follicle<n>Dist)		
R Follicle <n> Mean	Follicle <n> Distance (99SIEMENS, Follicle<n>Dist)	Derivation: Mean (SRT, R-00317)	

11.16 Private Sections: Left Cysts and Right Cysts

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Cysts <n> = 1..6	Container: Cysts Section (99SIEMENS, Cysts)	Laterality: Left (SRT, G-A101)	
L Cyst <n>	Cyst <n> Distance (99SIEMENS, Cyst<n>Dist)		
L Cyst <n> Mean	Cyst <n> Distance (99SIEMENS, Cyst<n>Dist)	Derivation: Mean (SRT, R-00317)	

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Cysts <n> = 1..6	Container: Cysts Section (99SIEMENS, Cysts)	Laterality: Laterality: Right (SRT, G-A100)	
R Cyst <n>	Cyst <n> Distance (99SIEMENS, Cyst<n>Dist)		
R Cyst <n> Mean	Cyst <n> Distance (99SIEMENS, Cyst<n>Dist)	Derivation: Mean (SRT, R-00317)	

11.17 Private Section: Bladder

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Bladder	Container: Bladder Section (99SIEMENS, Bladder)		
Micturated	Micturated Volume (99SIEMENS, MicturatedVol)		
PostVoid Bld V	Post-Void Volume (99SIEMENS, PostVoidVol)		
PostVoid Bld Mean	Post-Void Volume (99SIEMENS, PostVoidVol)	Derivation: Mean (SRT, R-00317)	

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
PostVoid Bld D1	Post-Void Volume: Distance 1 (99SIEMENS, PostVoidVolD1)		
PostVoid Bld D2	Post-Void Volume: Distance 2 (99SIEMENS, PostVoidVolD2)		
PostVoid Bld D3	Post-Void Volume: Distance 3 (99SIEMENS, PostVoidVolD3)		
PreVoid Bld V	Pre-Void Volume (99SIEMENS, PreVoidVol)		
PreVoid Bld Mean	Pre-Void Volume (99SIEMENS, PreVoidVol)	Derivation: Mean (SRT, R-00317)	
PreVoid Bld D1	Pre-Void Volume: Distance 1 (99SIEMENS, PreVoidVolD1)		
PreVoid Bld D2	Pre-Void Volume: Distance 2 (99SIEMENS, PreVoidVolD2)		
PreVoid Bld D3	Pre-Void Volume: Distance 3 (99SIEMENS, PreVoidVolD3)		

11.18 Private Section: Maternal Kidney

Label (Section: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Maternal Kidney	Container: Maternal Kidney (99SIEMENS, Mkidney)		
2D-Mode: L Mat Kidney	Left Maternal Kidney Distance (99SIEMENS, LMKidneyDist)		
2D-Mode: L Mat Kidney Mean	Left Maternal Kidney Distance (99SIEMENS, LMKidneyDist)	Derivation: Mean (SRT, R-00317)	
2D-Mode: R Mat Kidney	Right Maternal Kidney Distance (99SIEMENS, RMKidneyDist)		
2D-Mode: R Mat Kidney Mean	Right Maternal Kidney Distance (99SIEMENS, RMKidneyDist)	Derivation: Mean (SRT, R-00317)	
Volume: L Mat Kidney V	Left Maternal Kidney Volume (99SIEMENS, LMKidneyVol)		
Volume: L Mat Kidney Mean	Left Maternal Kidney Volume (99SIEMENS, LMKidneyVol)	Derivation: Mean (SRT, R-00317)	
Volume: L Mat Kidney D1	Left Maternal Kidney Volume: Distance 1 (99SIEMENS, LMKidneyVolD1)		
Volume: L Mat Kidney D2	Left Maternal Kidney Volume: Distance 2 (99SIEMENS, LMKidneyVolD2)		

Label (Section: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Volume: L Mat Kidney D3	Left Maternal Kidney Volume: Distance 3 (99SIEMENS, LMKidneyVolD3)		
Volume: R Mat Kidney V	Right Maternal Kidney Volume (99SIEMENS, RMKidneyVol)		
Volume: R Mat Kidney Mean	Right Maternal Kidney Volume (99SIEMENS, RMKidneyVol)	Derivation: Mean (SRT, R-00317)	
Volume: R Mat Kidney D1	Right Maternal Kidney Volume: Distance 1 (99SIEMENS, RMKidneyVolD1)		
Volume: R Mat Kidney D2	Right Maternal Kidney Volume: Distance 2 (99SIEMENS, RMKidneyVolD2)		
Volume: R Mat Kidney D3	Right Maternal Kidney Volume: Distance 3 (99SIEMENS, RMKidneyVolD3)		

11.19 Private Section: Breast

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Breast	Container: Breast (99SIEMENS, Breast)		
Heading: Breast 2D-Mode Mass Measurements			
L Mass 1	Left Mass 1, Breast (99SIEMENS, Lmass1Br)		
L Mass 1 Mean	Left Mass 1, Breast (99SIEMENS, Lmass1Br)	Derivation: Mean (SRT, R-00317)	
L Mass 2	Left Mass 2, Breast (99SIEMENS, Lmass2Br)		
L Mass 2 Mean	Left Mass 2, Breast (99SIEMENS, Lmass2Br)	Derivation: Mean (SRT, R-00317)	
L Mass 3	Left Mass 3, Breast (99SIEMENS, Lmass3Br)		
L Mass 3 Mean	Left Mass 3, Breast (99SIEMENS, Lmass3Br)	Derivation: Mean (SRT, R-00317)	
R Mass 1	Right Mass 1, Breast (99SIEMENS, Rmass1Br)		
R Mass 1 Mean	Right Mass 1, Breast (99SIEMENS, Rmass1Br)	Derivation: Mean (SRT, R-00317)	

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
R Mass 2	Right Mass 2, Breast (99SIEMENS, Rmass2Br)		
R Mass 2 Mean	Right Mass 2, Breast (99SIEMENS, Rmass2Br)	Derivation: Mean (SRT, R-00317)	
R Mass 3	Right Mass 3, Breast (99SIEMENS, Rmass3Br)		
R Mass 3 Mean	Right Mass 3, Breast (99SIEMENS, Rmass3Br)	Derivation: Mean (SRT, R-00317)	
Heading: Breast Mass Volume Measurements			
L Mass 1 V	Left Mass 1 Volume, Breast (99SIEMENS, Lmass1VolBr)		
L Mass 1 Mean	Left Mass 1 Volume, Breast (99SIEMENS, Lmass1VolBr)	Derivation: Mean (SRT, R-00317)	
L Mass 1 D1	Left Mass 1 Volume Distance 1, Breast (99SIEMENS, LM1VolD1Br)		
L Mass 1 D2	Left Mass 1 Volume Distance 2, Breast (99SIEMENS, LM1VolD2Br)		
L Mass 1 D3	Left Mass 1 Volume Distance 3, Breast (99SIEMENS, LM1VolD3Br)		
L Mass 2 V	Left Mass 2 Volume, Breast (99SIEMENS, Lmass2VolBr)		
L Mass 2 Mean	Left Mass 2 Volume, Breast (99SIEMENS, Lmass2VolBr)	Derivation: Mean (SRT, R-00317)	
L Mass 2 D1	Left Mass 2 Volume Distance 1, Breast (99SIEMENS, LM2VolD1Br)		
L Mass 2 D2	Left Mass 2 Volume Distance 2, Breast (99SIEMENS, LM2VolD2Br)		
L Mass 2 D3	Left Mass 2 Volume Distance 3, Breast (99SIEMENS, LM2VolD3Br)		
L Mass 3 V	Left Mass 3 Volume, Breast (99SIEMENS, Lmass3VolBr)		
L Mass 3 Mean	Left Mass 3 Volume, Breast (99SIEMENS, Lmass3VolBr)	Derivation: Mean (SRT, R-00317)	
L Mass 3 D1	Left Mass 3 Volume Distance 1, Breast (99SIEMENS, LM3VolD1Br)		
L Mass 3 D2	Left Mass 3 Volume Distance 2, Breast (99SIEMENS, LM3VolD2Br)		

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
L Mass 3 D3	Left Mass 3 Volume Distance 3, Breast (99SIEMENS, LM3VolD3Br)		
R Mass 1 V	Right Mass 1 Volume, Breast (99SIEMENS, Rmass1VolBr)		
R Mass 1 Mean	Right Mass 1 Volume, Breast (99SIEMENS, Rmass1VolBr)	Derivation: Mean (SRT, R-00317)	
R Mass 1 D1	Right Mass 1 Volume Distance 1, Breast (99SIEMENS, RM1VolD1Br)		
R Mass 1 D2	Right Mass 1 Volume Distance 2, Breast (99SIEMENS, RM1VolD2Br)		
R Mass 1 D3	Right Mass 1 Volume Distance 3, Breast (99SIEMENS, RM1VolD3Br)		
R Mass 2 V	Right Mass 2 Volume, Breast (99SIEMENS, Rmass2VolBr)		
R Mass 2 Mean	Right Mass 2 Volume, Breast (99SIEMENS, Rmass2VolBr)	Derivation: Mean (SRT, R-00317)	
R Mass 2 D1	Right Mass 2 Volume Distance 1, Breast (99SIEMENS, RM2VolD1Br)		
R Mass 2 D2	Right Mass 2 Volume Distance 2, Breast (99SIEMENS, RM2VolD2Br)		
R Mass 2 D3	Right Mass 2 Volume Distance 3, Breast (99SIEMENS, RM2VolD3Br)		
R Mass 3 V	Right Mass 3 Volume, Breast (99SIEMENS, Rmass3VolBr)		
R Mass 3 Mean	Right Mass 3 Volume, Breast (99SIEMENS, Rmass3VolBr)	Derivation: Mean (SRT, R-00317)	
R Mass 3 D1	Right Mass 3 Volume Distance 1, Breast (99SIEMENS, RM3VolD1Br)		
R Mass 3 D2	Right Mass 3 Volume Distance 2, Breast (99SIEMENS, RM3VolD2Br)		
R Mass 3 D3	Right Mass 3 Volume Distance 3, Breast (99SIEMENS, RM3VolD3Br)		
Heading: Breast 2D Mode Mass Area Ratio Measurements			
L Mass 1 Area Ratio	Left Mass 1 Area Ratio, Breast (99SIEMENS, Lmass1AratioBr)		
L Mass 1 Mean	Left Mass 1 Area Ratio, Breast (99SIEMENS, Lmass1AratioBr)	Derivation: Mean (SRT, R-00317)	

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
L Mass 1 A1	Left Mass 1 Area Ratio Area 1, Breast (99SIEMENS, LM1AratioA1Br)		
L Mass 1 A2	Left Mass 1 Area Ratio Area 2, Breast (99SIEMENS, LM1AratioA2Br)		
L Mass 2 Area Ratio	Left Mass 2 Area Ratio, Breast (99SIEMENS, Lmass2AratioBr)		
L Mass 2 Mean	Left Mass 2 Area Ratio, Breast (99SIEMENS, Lmass2AratioBr)	Derivation: Mean (SRT, R-00317)	
L Mass 2 A1	Left Mass 2 Area Ratio Area 1, Breast (99SIEMENS, LM2AratioA1Br)		
L Mass 2 A2	Left Mass 2 Area Ratio Area 2, Breast (99SIEMENS, LM2AratioA2Br)		
L Mass 3 Area Ratio	Left Mass 3 Area Ratio, Breast (99SIEMENS, Lmass3AratioBr)		
L Mass 3 Mean	Left Mass 3 Area Ratio, Breast (99SIEMENS, Lmass3AratioBr)	Derivation: Mean (SRT, R-00317)	
L Mass 3 A1	Left Mass 3 Area Ratio Area 1, Breast (99SIEMENS, LM3AratioA1Br)		
L Mass 3 A2	Left Mass 3 Area Ratio Area 2, Breast (99SIEMENS, LM3AratioA2Br)		
R Mass 1 Area Ratio	Right Mass 1 Area Ratio, Breast (99SIEMENS, Rmass1AratioBr)		
R Mass 1 Mean	Right Mass 1 Area Ratio, Breast (99SIEMENS, Rmass1AratioBr)	Derivation: Mean (SRT, R-00317)	
R Mass 1 A1	Right Mass 1 Area Ratio Area 1, Breast (99SIEMENS, RM1AratioA1Br)		
R Mass 1 A2	Right Mass 1 Area Ratio Area 2, Breast (99SIEMENS, RM1AratioA2Br)		
R Mass 2 Area Ratio	Right Mass 2 Area Ratio, Breast (99SIEMENS, Rmass2AratioBr)		
R Mass 2 Mean	Right Mass 2 Area Ratio, Breast (99SIEMENS, Rmass2AratioBr)	Derivation: Mean (SRT, R-00317)	
R Mass 2 A1	Right Mass 2 Area Ratio Area 1, Breast (99SIEMENS, RM2AratioA1Br)		
R Mass 2 A2	Right Mass 2 Area Ratio Area 2, Breast (99SIEMENS, RM2AratioA2Br)		
R Mass 3 Area Ratio	Right Mass 3 Area Ratio, Breast (99SIEMENS, Rmass3AratioBr)		

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
R Mass 3 Mean	Right Mass 3 Area Ratio, Breast (99SIEMENS, Rmass3AratioBr)	Derivation: Mean (SRT, R-00317)	
R Mass 3 A1	Right Mass 3 Area Ratio Area 1, Breast (99SIEMENS, RM3AratioA1Br)		
R Mass 3 A2	Right Mass 3 Area Ratio Area 2, Breast (99SIEMENS, RM3AratioA2Br)		
Heading: Breast 2D Elasticity Image Mass Area Measurements			
L Mass 1 EI/B Mode Ratio	Left Mass 1 Elasticity Area Ratio, Breast (99SIEMENS, Lmass1AratioBrE)		
L Mass 1 Mean	Left Mass 1 Elasticity Area Ratio, Breast (99SIEMENS, Lmass1AratioBrE)	Derivation: Mean (SRT, R-00317)	
L Mass 1 A1	Left Mass 1 Elasticity Area Ratio Area 1, Breast (99SIEMENS, LM1AratioA1BrE)		
L Mass 1 A2	Left Mass 1 Elasticity Area Ratio Area 2, Breast (99SIEMENS, LM1AratioA2BrE)		
L Mass 2 EI/B Mode Ratio	Left Mass 2 Elasticity Area Ratio, Breast (99SIEMENS, Lmass2AratioBrE)		
L Mass 2 Mean	Left Mass 2 Elasticity Area Ratio, Breast (99SIEMENS, Lmass2AratioBrE)	Derivation: Mean (SRT, R-00317)	
L Mass 2 A1	Left Mass 2 Elasticity Area Ratio Area 1, Breast (99SIEMENS, LM2AratioA1BrE)		
L Mass 2 A2	Left Mass 2 Elasticity Area Ratio Area 2, Breast (99SIEMENS, LM2AratioA2BrE)		
L Mass 3 EI/B Mode Ratio	Left Mass 3 Elasticity Area Ratio, Breast (99SIEMENS, Lmass3AratioBrE)		
L Mass 3 Mean	Left Mass 3 Elasticity Area Ratio, Breast (99SIEMENS, Lmass3AratioBrE)	Derivation: Mean (SRT, R-00317)	
L Mass 3 A1	Left Mass 3 Elasticity Area Ratio Area 1, Breast (99SIEMENS, LM3AratioA1BrE)		
L Mass 3 A2	Left Mass 3 Elasticity Area Ratio Area 2, Breast (99SIEMENS, LM3AratioA2BrE)		
R Mass 1 EI/B Mode Ratio	Right Mass 1 Elasticity Area Ratio, Breast (99SIEMENS, Rmass1AratioBrE)		
R Mass 1 Mean	Right Mass 1 Elasticity Area Ratio, Breast (99SIEMENS, Rmass1AratioBrE)	Derivation: Mean (SRT, R-00317)	
R Mass 1 A1	Right Mass 1 Elasticity Area Ratio Area 1, Breast (99SIEMENS, RM1AratioA1BrE)		

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
R Mass 1 A2	Right Mass 1 Elasticity Area Ratio Area 2, Breast (99SIEMENS, RM1AratioA2BrE)		
R Mass 2 EI/B Mode Ratio	Right Mass 2 Elasticity Area Ratio, Breast (99SIEMENS, Rmass2AratioBrE)		
R Mass 2 Mean	Right Mass 2 Elasticity Area Ratio, Breast (99SIEMENS, Rmass2AratioBrE)	Derivation: Mean (SRT, R-00317)	
R Mass 2 A1	Right Mass 2 Elasticity Area Ratio Area 1, Breast (99SIEMENS, RM2AratioA1BrE)		
R Mass 2 A2	Right Mass 2 Elasticity Area Ratio Area 2, Breast (99SIEMENS, RM2AratioA2BrE)		
R Mass 3 EI/B Mode Ratio	Right Mass 3 Elasticity Area Ratio, Breast (99SIEMENS, Rmass3AratioBrE)		
R Mass 3 Mean	Right Mass 3 Elasticity Area Ratio, Breast (99SIEMENS, Rmass3AratioBrE)	Derivation: Mean (SRT, R-00317)	
R Mass 3 A1	Right Mass 3 Elasticity Area Ratio Area 1, Breast (99SIEMENS, RM3AratioA1BrE)		
R Mass 3 A2	Right Mass 3 Elasticity Area Ratio Area 2, Breast (99SIEMENS, RM3AratioA2BrE)		
Heading: Breast 2D Mode Mass Distance Ratio Measurements			
L Mass 1 Distance Ratio	Left Mass 1 Distance Ratio, Breast (99SIEMENS, Lmass1DratioBr)		
L Mass 1 Mean	Left Mass 1 Distance Ratio, Breast (99SIEMENS, Lmass1DratioBr)	Derivation: Mean (SRT, R-00317)	
L Mass 1 D1	Left Mass 1 Distance Ratio Distance 1, Breast (99SIEMENS, LM1DratioD1Br)		
L Mass 1 D2	Left Mass 1 Distance Ratio Distance 2, Breast (99SIEMENS, LM1DratioD2Br)		
L Mass 2 Distance Ratio	Left Mass 2 Distance Ratio, Breast (99SIEMENS, Lmass2DratioBr)		
L Mass 2 Mean	Left Mass 2 Distance Ratio, Breast (99SIEMENS, Lmass2DratioBr)	Derivation: Mean (SRT, R-00317)	
L Mass 2 D1	Left Mass 2 Distance Ratio Distance 1, Breast (99SIEMENS, LM2DratioD1Br)		

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
L Mass 2 D2	Left Mass 2 Distance Ratio Distance 2, Breast (99SIEMENS, LM2DratioD2Br)		
L Mass 3 Distance Ratio	Left Mass 3 Distance Ratio, Breast (99SIEMENS, Lmass3DratioBr)		
L Mass 3 Mean	Left Mass 3 Distance Ratio, Breast (99SIEMENS, Lmass3DratioBr)	Derivation: Mean (SRT, R-00317)	
L Mass 3 D1	Left Mass 3 Distance Ratio Distance 1, Breast (99SIEMENS, LM3DratioD1Br)		
L Mass 3 D2	Left Mass 3 Distance Ratio Distance 2, Breast (99SIEMENS, LM3DratioD2Br)		
R Mass 1 Distance Ratio	Right Mass 1 Distance Ratio, Breast (99SIEMENS, Rmass1DratioBr)		
R Mass 1 Mean	Right Mass 1 Distance Ratio, Breast (99SIEMENS, Rmass1DratioBr)	Derivation: Mean (SRT, R-00317)	
R Mass 1 D1	Right Mass 1 Distance Ratio Distance 1, Breast (99SIEMENS, RM1DratioD1Br)		
R Mass 1 D2	Right Mass 1 Distance Ratio Distance 2, Breast (99SIEMENS, RM1DratioD2Br)		
R Mass 2 Distance Ratio	Right Mass 2 Distance Ratio, Breast (99SIEMENS, Rmass2DratioBr)		
R Mass 2 Mean	Right Mass 2 Distance Ratio, Breast (99SIEMENS, Rmass2DratioBr)	Derivation: Mean (SRT, R-00317)	
R Mass 2 D1	Right Mass 2 Distance Ratio Distance 1, Breast (99SIEMENS, RM2DratioD1Br)		
R Mass 2 D2	Right Mass 2 Distance Ratio Distance 2, Breast (99SIEMENS, RM2DratioD2Br)		
R Mass 3 Distance Ratio	Right Mass 3 Distance Ratio, Breast (99SIEMENS, Rmass3DratioBr)		
R Mass 3 Mean	Right Mass 3 Distance Ratio, Breast (99SIEMENS, Rmass3DratioBr)	Derivation: Mean (SRT, R-00317)	
R Mass 3 D1	Right Mass 3 Distance Ratio Distance 1, Breast (99SIEMENS, RM3DratioD1Br)		
R Mass 3 D2	Right Mass 3 Distance Ratio Distance 2, Breast (99SIEMENS, RM3DratioD2Br)		
Heading: Breast 2D Elasticity Image Mass Distance Measurements			
L Mass 1 EI/B Mode Ratio	Left Mass 1 Elasticity Distance Ratio, Breast (99SIEMENS, Lmass1DratioBrE)		

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
L Mass 1 Mean	Left Mass 1 Elasticity Distance Ratio, Breast (99SIEMENS, Lmass1DratioBrE)	Derivation: Mean (SRT, R-00317)	
L Mass 1 D1	Left Mass 1 Elasticity Distance Ratio Distance 1, Breast (99SIEMENS, LM1DratioD1BrE)		
L Mass 1 D2	Left Mass 1 Elasticity Distance Ratio Distance 2, Breast (99SIEMENS, LM1DratioD2BrE)		
L Mass 2 EI/B Mode Ratio	Left Mass 2 Elasticity Distance Ratio, Breast (99SIEMENS, Lmass2DratioBrE)		
L Mass 2 Mean	Left Mass 2 Elasticity Distance Ratio, Breast (99SIEMENS, Lmass2DratioBrE)	Derivation: Mean (SRT, R-00317)	
L Mass 2 D1	Left Mass 2 Elasticity Distance Ratio Distance 1, Breast (99SIEMENS, LM2DratioD1BrE)		
L Mass 2 D2	Left Mass 2 Elasticity Distance Ratio Distance 2, Breast (99SIEMENS, LM2DratioD2BrE)		
L Mass 3 EI/B Mode Ratio	Left Mass 3 Elasticity Distance Ratio, Breast (99SIEMENS, Lmass3DratioBrE)		
L Mass 3 Mean	Left Mass 3 Elasticity Distance Ratio, Breast (99SIEMENS, Lmass3DratioBrE)	Derivation: Mean (SRT, R-00317)	
L Mass 3 D1	Left Mass 3 Elasticity Distance Ratio Distance 1, Breast (99SIEMENS, LM3DratioD1BrE)		
L Mass 3 D2	Left Mass 3 Elasticity Distance Ratio Distance 2, Breast (99SIEMENS, LM3DratioD2BrE)		
R Mass 1 EI/B Mode Ratio	Right Mass 1 Elasticity Distance Ratio, Breast (99SIEMENS, Rmass1DratioBrE)		
R Mass 1 Mean	Right Mass 1 Elasticity Distance Ratio, Breast (99SIEMENS, Rmass1DratioBrE)	Derivation: Mean (SRT, R-00317)	
R Mass 1 D1	Right Mass 1 Elasticity Distance Ratio Distance 1, Breast (99SIEMENS, RM1DratioD1BrE)		
R Mass 1 D2	Right Mass 1 Elasticity Distance Ratio Distance 2, Breast (99SIEMENS, RM1DratioD2BrE)		
R Mass 2 EI/B Mode Ratio	Right Mass 2 Elasticity Distance Ratio, Breast (99SIEMENS, Rmass2DratioBrE)		
R Mass 2 Mean	Right Mass 2 Elasticity Distance Ratio, Breast (99SIEMENS, Rmass2DratioBrE)	Derivation: Mean (SRT, R-00317)	
R Mass 2 D1	Right Mass 2 Elasticity Distance Ratio Distance 1, Breast (99SIEMENS, RM2DratioD1BrE)		
R Mass 2 D2	Right Mass 2 Elasticity Distance Ratio Distance 2, Breast (99SIEMENS, RM2DratioD2BrE)		

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
R Mass 3 EI/B Mode Ratio	Right Mass 3 Elasticity Distance Ratio, Breast (99SIEMENS, Rmass3DratioBrE)		
R Mass 3 Mean	Right Mass 3 Elasticity Distance Ratio, Breast (99SIEMENS, Rmass3DratioBrE)	Derivation: Mean (SRT, R-00317)	
R Mass 3 D1	Right Mass 3 Elasticity Distance Ratio Distance 1, Breast (99SIEMENS, RM3DratioD1BrE)		
R Mass 3 D2	Right Mass 3 Elasticity Distance Ratio Distance 2, Breast (99SIEMENS, RM3DratioD2BrE)		
Heading: Breast 2D-Mode Mass Area Measurements			
Left Mass 1 C	Left Mass 1 Circumference, Breast (99SIEMENS, Lmass1CircumfBr)		
	Left Mass 1 Circumference, Breast (99SIEMENS, Lmass1CircumfBr)	Derivation: Mean (SRT, R-00317)	
Left Mass 2 C	Left Mass 2 Circumference, Breast (99SIEMENS, Lmass2CircumfBr)		
	Left Mass 2 Circumference, Breast (99SIEMENS, Lmass2CircumfBr)	Derivation: Mean (SRT, R-00317)	
Left Mass 3 C	Left Mass 3 Circumference, Breast (99SIEMENS, Lmass3CircumfBr)		
	Left Mass 3 Circumference, Breast (99SIEMENS, Lmass3CircumfBr)	Derivation: Mean (SRT, R-00317)	
Left Mass 1 A	Left Mass 1 Area, Breast (99SIEMENS, Lmass1AreaBr)		
	Left Mass 1 Area, Breast (99SIEMENS, Lmass1AreaBr)	Derivation: Mean (SRT, R-00317)	
Left Mass 2 A	Left Mass 2 Area, Breast (99SIEMENS, Lmass2AreaBr)		
	Left Mass 2 Area, Breast (99SIEMENS, Lmass2AreaBr)	Derivation: Mean (SRT, R-00317)	
Left Mass 3 A	Left Mass 3 Area, Breast (99SIEMENS, Lmass3AreaBr)		
	Left Mass 3 Area, Breast (99SIEMENS, Lmass3AreaBr)	Derivation: Mean (SRT, R-00317)	
Right Mass 1 C	Right Mass 1 Circumference, Breast (99SIEMENS, Rmass1CircumfBr)		
	Right Mass 1 Circumference, Breast (99SIEMENS, Rmass1CircumfBr)	Derivation: Mean (SRT, R-00317)	

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers	Measurement References
Right Mass 2 C	Right Mass 2 Circumference, Breast (99SIEMENS, Rmass2CircumfBr)		
	Right Mass 2 Circumference, Breast (99SIEMENS, Rmass2CircumfBr)	Derivation: Mean (SRT, R-00317)	
Right Mass 3 C	Right Mass 3 Circumference, Breast (99SIEMENS, Rmass3CircumfBr)		
	Right Mass 3 Circumference, Breast (99SIEMENS, Rmass3CircumfBr)	Derivation: Mean (SRT, R-00317)	
Right Mass 1 A	Right Mass 1 Area, Breast (99SIEMENS, Rmass1AreaBr)		
	Right Mass 1 Area, Breast (99SIEMENS, Rmass1AreaBr)	Derivation: Mean (SRT, R-00317)	
Right Mass 2 A	Right Mass 2 Area, Breast (99SIEMENS, Rmass2AreaBr)		
	Right Mass 2 Area, Breast (99SIEMENS, Rmass2AreaBr)	Derivation: Mean (SRT, R-00317)	
Right Mass 3 A	Right Mass 3 Area, Breast (99SIEMENS, Rmass3AreaBr)		
	Right Mass 3 Area, Breast (99SIEMENS, Rmass3AreaBr)	Derivation: Mean (SRT, R-00317)	

12.0 Appendix B: Vascular Structured Report Measurements

This appendix lists the DICOM Structured Report (SR) mappings used in the Vascular Structured Reports of ACUSON S2000 system SR files.

The mappings are organized in a manner similar to the DICOM SR Templates as described in PS 3.16-2008 of the DICOM Standard. The “Label” column identifies the on-screen report label associated with a measurement. All private code values use the Coding Scheme Designator “99SIEMENS”.

The Vascular Report mappings follow the DICOM SR Template TID 5100: Vascular Ultrasound Report. Mixed Carotid Ratios, Kidney, Ureter, Bladder, “Liver, Gall Bladder, Pancreas”, and Spleen are private sections in this release.

The measurements in the table below apply to the vessels listed in this Appendix. The %Stenosis and %Stenosis-related measurements are not available for veins. “Mean” values are not present in the SR for the following vessels because these vessels are available as labeled measurements in multiple exam headings: Common Carotid Artery, Vertebral Artery, Innominate Artery, Abdominal Aorta, Inferior Vena Cava, Renal Artery.

Notation:
[…] is additional information about the label

Label (Section: Measurement)	**Code Meaning (Coding Scheme Designator, Code Value)**	**Modifiers**
Doppler: Angle	Doppler Angle Correction (99SIEMENS, DopAngleCor)	
Doppler: ED	End Diastolic Velocity (LN, 11653-3)	
Doppler: PI	Pulsatility Index (LN, 12008-9)	
Doppler: PS	Peak Systolic Velocity (LN, 11726-7)	
Doppler: RI	Resistivity Index (LN, 12023-8)	
Doppler: S/D	Systolic to Diastolic Velocity Ratio (LN, 12144-2)	
Doppler: TAV	Time Averaged Peak Velocity (LN, 11692-1)	
Doppler: TAV	Doppler Time Averaged Velocity (99SIEMENS, DopTAV)	
Acceleration: Acceleration	Acceleration Index (LN, 20167-3)	
Acceleration: Mean	Acceleration Index (LN, 20167-3)	Derivation: Mean (SRT, R-00317)
Acceleration: V1	Acceleration Velocity 1 (99SIEMENS, AccelVel1)	
Acceleration: V2	Acceleration Velocity 2 (99SIEMENS, AccelVel2)	
Acceleration: T	Acceleration Time (LN, 20168-1)	

Label (Section: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Stenosis: %Stenosis [Area]	% Area Reduction (SRT, G-0371)	
Stenosis: Mean [Area]	% Area Reduction (SRT, G-0371)	Derivation: Mean (SRT, R-00317)
Stenosis: A1 Meas 1	Vessel Lumen Cross-Sectional Area (SRT, G-0366)	
Stenosis: A2 Meas 2	Vessel Lumen Cross-Sectional Area (SRT, G-0366)	
Stenosis: %Stenosis [Distance]	% Diameter Reduction (SRT, G-0372)	
Stenosis: Mean [Distance]	% Diameter Reduction (SRT, G-0372)	Derivation: Mean (SRT, R-00317)
Stenosis: D1 Meas 1	Vessel Lumen Diameter (SRT, G-0364)	
Stenosis: D2 Meas 2	Vessel Lumen Diameter (SRT, G-0364)	
Velocity: Vel	Velocity (99SIEMENS, Velocity)	
Velocity: Mean	Velocity (99SIEMENS, Velocity)	Derivation: Mean (SRT, R-00317)
Velocity: Angle	Velocity Angle Correction (99SIEMENS, VelAngleCor)	
Volume Flow: Volume Flow	Volume Flow (LN, 33878-0)	
Volume Flow: Mean	Volume Flow (LN, 33878-0)	Derivation: Mean (SRT, R-00317)
Volume Flow: A	Volume Flow Area (99SIEMENS, VolFArea)	
Volume Flow: D	Volume Flow Distance (99SIEMENS, VolFDist)	
Volume Flow: TAMn	Volume Flow Time-Averaged Mean Velocity (99SIEMENS, VolFTAVmV)	
2D-Mode:	Distance (99SIEMENS, Distance)	
2D-Mode: Mean	Distance (99SIEMENS, Distance)	Derivation: Mean (SRT, R-00317)

[Note: Stenosis measurements are not available for veins.]

12.1 Patient Characteristics

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Patient Characteristics	Container: Patient Characteristics (DCM, 121118)	
Age	Subject Age (DCM, 121033)	
Gender	Subject Sex (DCM, 121032)	
[Not shown on report]	Heart Rate (LN, 8867-4)	
Blood pressure	Systolic Blood Pressure (SRT, F-008EC)	
	Diastolic Blood Pressure (SRT, F-008ED)	

12.2 Procedure Summary

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Procedure Summary	Container: Summary (DCM, 121111)	
Additional info	Comment (DCM, 121106)	
Comments	Comment (DCM, 121106)	
Indication	Comment (DCM, 121106)	

12.3 Blood Vessels of Head (Left Intracranial Cerebral Vessels)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Blood Vessel of Head (Intracranial Cerebral Vessels)	Finding Site: Blood Vessel of Head (SRT, T-40501)	Laterality: Left (SRT, G-A101)
L MCA/L ICA-Siphon	MCA/ICA Siphon (99SIEMENS, McaIcaSRatio)	
L ACA-A1 [Label:TCD]	Location: Anterior Cerebral Artery A1 (99SIEMENS, AntCerebAA1)	Laterality: Left (SRT, G-A101)
L ACA-A2 [Label:TCD]	Location: Anterior Cerebral Artery A2 (99SIEMENS, AntCerebAA2)	Laterality: Left (SRT, G-A101)
L ICA-Siphon [Label:TCD]	Location : Carotid Siphon (SRT, T-45308)	Laterality: Left (SRT, G-A101)
L MCA [Label:TCD]	Location: Middle Cerebral Artery (SRT, T-45600)	Laterality: Left (SRT, G-A101)
L PCA [Label:TCD]	Location: Posterior Cerebral Artery (SRT, T-45900)	Laterality: Left (SRT, G-A101)
L PCA-P1 [Label:TCD]	Location: Posterior Cerebral Artery P1 (99SIEMENS, PostCerebAP1)	Laterality: Left (SRT, G-A101)
L PCA-P2 [Label:TCD]	Location: Posterior Cerebral Artery P2 (99SIEMENS, PostCerebAP2)	Laterality: Left (SRT, G-A101)

12.4 Blood Vessel of Head (Right Intracranial Cerebral Vessels)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Blood Vessel of Head (Intracranial Cerebral Vessels)	Finding Site: Blood Vessel of Head (SRT, T-40501)	Laterality: Right (SRT, G-A100)
R MCA/R ICA-Siphon	MCA/ICA Siphon (99SIEMENS, McaIcaSRatio)	
R ACA-A1 [Label: TCD]	Location: Anterior Cerebral Artery A1 (99SIEMENS, AntCerebAA1)	Laterality: Right (SRT, G-A100)
R ACA-A2 [Label: TCD]	Location: Anterior Cerebral Artery A2 (99SIEMENS, AntCerebAA2)	Laterality: Right (SRT, G-A100)
R ICA-Siphon [Label:TCD]	Location : Carotid Siphon (SRT, T-45308)	Laterality: Right (SRT, G-A100)
R MCA [Label:TCD]	Location: Middle Cerebral Artery (SRT, T-45600)	Laterality: Right (SRT, G-A100)
R PCA [Label:TCD]	Location: Posterior Cerebral Artery (SRT, T-45900)	Laterality: Right (SRT, G-A100)
R PCA-P1 [Label: TCD]	Location: Posterior Cerebral Artery P1 (99SIEMENS, PostCerebAP1)	Laterality: Right (SRT, G-A100)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
R PCA-P2 [Label: TCD]	Location: Posterior Cerebral Artery P2 (99SIEMENS, PostCerebAP2)	Laterality: Right (SRT, G-A100)

12.5 Blood Vessel of Head (Unilateral Intracranial Cerebral Vessels)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Blood Vessel of Head (Intracranial Cerebral Vessels)	Finding Site: Blood Vessel of Head (SRT, T-40501)	Laterality: Unilateral (SRT, G-A103)
AcoA [Label: TCD]	Location: Anterior Communicating Artery (SRT, T-45530)	Laterality: Unilateral (SRT, G-A103)
Basilar A [Label: TCD]	Location: Basilar Artery (SRT, T-45800)	Laterality: Unilateral (SRT, G-A103)
PcoA [Label: TCD]	Location: Posterior Communicating Artery (SRT, T-45320)	Laterality: Unilateral (SRT, G-A103)

12.6 Artery of Neck (Left Extracranial Arteries, Carotid Ratios)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Artery of Neck (Extracranial Arteries, Carotid Ratios)	Finding Site: Artery of Neck (SRT, T-45005)	Laterality: Left (SRT, G-A101)
L <Prox, Mid, or Dist> ICA / L <Prox, Mid, or Dist> CCA [User selected CV Velocity Ratios]	ICA/CCA velocity ratio (LN, 33868-1)	
L <Prox, Mid, or Dist> ICA / L <Prox, Mid, or Dist> CCA ED [User selected CV ICA/CCA Ratios]	End Diastole: ICA/CCA (99SIEMENS, EDIcaCCARatio)	
L <Prox, Mid, or Dist> ICA / L <Prox, Mid, or Dist> CCA PS [User selected CV ICA/CCA Ratios]	Peak Systole: ICA/CCA (99SIEMENS, PSIcaCCARatio)	
L Carotid Bulb	Location: Carotid Bulb (SRT, T-45170)	Laterality: Left (SRT, G-A101)
L CCA [Labels: CV, PV-Art]	Location: Common Carotid Artery (SRT, T-45100)	Laterality: Left (SRT, G-A101)
L Prox CCA		Topographical Modifier: Proximal (SRT, G-A118)
L Mid CCA		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist CCA		Topographical Modifier: Distal (SRT, G-A119)
L ECA [Label: CV]	Location: External Carotid Artery (SRT, T-45200)	Laterality: Left (SRT, G-A101)
L Prox ECA		Topographical Modifier: Proximal (SRT, G-A118)
L Mid ECA		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist ECA		Topographical Modifier: Distal (SRT, G-A119)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
L ICA [Label: CV]	Location: Internal Carotid Artery (SRT, T-45300)	Laterality: Left (SRT, G-A101)
L Prox ICA		Topographical Modifier: Proximal (SRT, G-A118)
L Mid ICA		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist ICA		Topographical Modifier: Distal (SRT, G-A119)
L Subclav A [Label: CV]	Location: Subclavian Artery (SRT, T-46100)	Laterality: Left (SRT, G-A101)
L Prox Subclav A		Topographical Modifier: Proximal (SRT, G-A118)
L Mid Subclav A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist Subclav A		Topographical Modifier: Distal (SRT, G-A119)
L Vert A [Labels: CV, PV-Art, TCD]	Location: Vertebral Artery (SRT, T-45700)	Laterality: Left (SRT, G-A101)
L Vert A		
L Prox Vert A		Topographical Modifier: Proximal (SRT, G-A118)
L Mid Vert A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist Vert A		Topographical Modifier: Distal (SRT, G-A119)

12.7 Artery of Neck (Right Extracranial Arteries, Carotid Ratios)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Artery of Neck (Extracranial Arteries, Carotid Ratios)	Finding Site: Artery of Neck (SRT, T-45005)	Laterality: Right (SRT, G-A100)
R <Prox, Mid, or Dist> ICA / R <Prox, Mid, or Dist> CCA [User selected CV Velocity Ratios]	ICA/CCA velocity ratio (LN, 33868-1)	
R <Prox, Mid, or Dist> ICA / R <Prox, Mid, or Dist> CCA ED [User selected CV ICA/CCA Ratios]	End Diastole: ICA/CCA (99SIEMENS, EDIcaCCARatio)	
R <Prox, Mid, or Dist> ICA / R <Prox, Mid, or Dist> CCA PS [User selected CV ICA/CCA Ratios]	Peak Systole: ICA/CCA (99SIEMENS, PSIcaCCARatio)	
R Carotid Bulb	Location: Carotid Bulb (SRT, T-45170)	Laterality: Right (SRT, G-A100)
R CCA [Labels: CV, PV-Art]	Location: Common Carotid Artery (SRT, T-45100)	Laterality: Right (SRT, G-A100)
R Prox CCA		Topographical Modifier: Proximal (SRT, G-A118)
R Mid CCA		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist CCA		Topographical Modifier: Distal (SRT, G-A119)
R ECA [Label: CV]	Location: External Carotid Artery (SRT, T-45200)	Laterality: Right (SRT, G-A100)
R Prox ECA		Topographical Modifier: Proximal (SRT, G-A118)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
R Mid ECA		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist ECA		Topographical Modifier: Distal (SRT, G-A119)
R ICA [Label: CV]	Location: Internal Carotid Artery (SRT, T-45300)	Laterality: Right (SRT, G-A100)
R Prox ICA		Topographical Modifier: Proximal (SRT, G-A118)
R Mid ICA		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist ICA		Topographical Modifier: Distal (SRT, G-A119)
R Subclav A [Label: CV]	Location: Subclavian Artery (SRT, T-46100)	Laterality: Right (SRT, G-A100)
R Prox Subclav A		Topographical Modifier: Proximal (SRT, G-A118)
R Mid Subclav A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist Subclav A		Topographical Modifier: Distal (SRT, G-A119)
R Vert A [Labels: CV, PV-Art, TCD]	Location: Vertebral Artery (SRT, T-45700)	Laterality: Right (SRT, G-A100)
R Vert A		
R Prox Vert A		Topographical Modifier: Proximal (SRT, G-A118)
R Mid Vert A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist Vert A		Topographical Modifier: Distal (SRT, G-A119)

12.8 Artery of Lower Extremity (Left Side)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Artery of Lower Extremity	Finding Site: Artery of Lower Extremity (SRT, T-47040)	Laterality: Left (SRT, G-A101)
L CIA [Label: PV-Art] L Iliac A [Label: Abd]	Location: Common Iliac Artery (SRT, T-46710)	Laterality: Left (SRT, G-A101)
L Prox CIA L Prox Iliac A		Topographical Modifier: Proximal (SRT, G-A118)
L Mid CIA L Mid Iliac A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist CIA L Dist Iliac A		Topographical Modifier: Distal (SRT, G-A119)
L Ant Tib A [Label: PV-Art]	Location: Anterior Tibial Artery (SRT, T-47700)	Laterality: Left (SRT, G-A101)
L Prox Ant Tib A		Topographical Modifier: Proximal (SRT, G-A118)
L Mid Ant Tib A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist Ant Tib A		Topographical Modifier: Distal (SRT, G-A119)
L CFA [Label: PV-Art]	Location: Common Femoral Artery (SRT, T-47400)	Laterality: Left (SRT, G-A101)
L Prox CFA		Topographical Modifier: Proximal (SRT, G-A118)
L Mid CFA		Topographical Modifier: Mid-longitudinal (SRT, G-A188)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
L Dist CFA		Topographical Modifier: Distal (SRT, G-A119)
L DPA [Label: PV-Art]	Location: Dorsalis Pedis Artery (SRT, T-47741)	Laterality: Left (SRT, G-A101)
L Prox DPA		Topographical Modifier: Proximal (SRT, G-A118)
L Mid DPA		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist DPA		Topographical Modifier: Distal (SRT, G-A119)
L EIA [Label: PV-Art]	Location: External Iliac Artery (SRT, T-46910)	Laterality: Left (SRT, G-A101)
L Prox EIA		Topographical Modifier: Proximal (SRT, G-A118)
L Mid EIA		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist EIA		Topographical Modifier: Distal (SRT, G-A119)
L IIA [Label: PV-Art]	Location: Internal Iliac Artery (SRT, T-46740)	Laterality: Left (SRT, G-A101)
L Prox IIA		Topographical Modifier: Proximal (SRT, G-A118)
L Mid IIA		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist IIA		Topographical Modifier: Distal (SRT, G-A119)
L Peroneal A [Label: PV-Art]	Location: Peroneal Artery (SRT, T-47630)	Laterality: Left (SRT, G-A101)
L Prox Peroneal A		Topographical Modifier: Proximal (SRT, G-A118)
L Mid Peroneal A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist Peroneal A		Topographical Modifier: Distal (SRT, G-A119)
L Pop A [Label: PV-Art]	Location: Popliteal Artery (SRT, T-47500)	Laterality: Left (SRT, G-A101)
L Prox Pop A		Topographical Modifier: Proximal (SRT, G-A118)
L Mid Pop A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist Pop A		Topographical Modifier: Distal (SRT, G-A119)
L Post Tib A [Label: PV-Art]	Location: Posterior Tibial Artery (SRT, T-47600)	Laterality: Left (SRT, G-A101)
L Prox Post Tib A		Topographical Modifier: Proximal (SRT, G-A118)
L Mid Post Tib A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist Post Tib A		Topographical Modifier: Distal (SRT, G-A119)
L PFA [Label: PV-Art]	Location: Profunda Femoris Artery (SRT, T-47440)	Laterality: Left (SRT, G-A101)
L Prox PFA		Topographical Modifier: Proximal (SRT, G-A118)
L Mid PFA		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist PFA		Topographical Modifier: Distal (SRT, G-A119)
L SFA [Label: PV-Art]	Location: Superficial Femoral Artery (SRT, T-47403)	Laterality: Left (SRT, G-A101)
L Prox SFA		Topographical Modifier: Proximal (SRT, G-A118)
L Mid SFA		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist SFA		Topographical Modifier: Distal (SRT, G-A119)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
L T-P Trunk A [Label: PV-Art]	Location: Tibial-Peroneal Trunk Artery (99SIEMENS, TibPeronTrnkA)	Laterality: Left (SRT, G-A101)
L Prox T-P Trunk A		Topographical Modifier: Proximal (SRT, G-A118)
L Mid T-P Trunk A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist T-P Trunk A		Topographical Modifier: Distal (SRT, G-A119)

12.9 Artery of Lower Extremity (Right Side)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Artery of Lower Extremity	Finding Site: Artery of Lower Extremity (SRT, T-47040)	Laterality: Right (SRT, G-A100)
R CIA [Label: PV-Art, Abd]	Location: Common Iliac Artery (SRT, T-46710)	Laterality: Right (SRT, G-A100)
R Prox CIA		Topographical Modifier: Proximal (SRT, G-A118)
R Mid CIA		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist CIA		Topographical Modifier: Distal (SRT, G-A119)
R Ant Tib A [Label: PV-Art]	Location: Anterior Tibial Artery (SRT, T-47700)	Laterality: Right (SRT, G-A100)
R Prox Ant Tib A		Topographical Modifier: Proximal (SRT, G-A118)
R Mid Ant Tib A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist Ant Tib A		Topographical Modifier: Distal (SRT, G-A119)
R CFA [Label: PV-Art]	Location: Common Femoral Artery (SRT, T-47400)	Laterality: Right (SRT, G-A100)
R Prox CFA		Topographical Modifier: Proximal (SRT, G-A118)
R Mid CFA		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist CFA		Topographical Modifier: Distal (SRT, G-A119)
R DPA [Label: PV-Art]	Location: Dorsalis Pedis Artery (SRT, T-47741)	Laterality: Right (SRT, G-A100)
R Prox DPA		Topographical Modifier: Proximal (SRT, G-A118)
R Mid DPA		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist DPA		Topographical Modifier: Distal (SRT, G-A119)
R EIA [Label: PV-Art]	Location: External Iliac Artery (SRT, T-46910)	Laterality: Right (SRT, G-A100)
R Prox EIA		Topographical Modifier: Proximal (SRT, G-A118)
R Mid EIA		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist EIA		Topographical Modifier: Distal (SRT, G-A119)
R IIA [Label: PV-Art]	Location: Internal Iliac Artery (SRT, T-46740)	Laterality: Right (SRT, G-A100)
R Prox IIA		Topographical Modifier: Proximal (SRT, G-A118)
R Mid IIA		Topographical Modifier: Mid-longitudinal (SRT, G-A188)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
R Dist IIA		Topographical Modifier: Distal (SRT, G-A119)
R Peroneal A [Label: PV-Art]	Location: Peroneal Artery (SRT, T-47630)	Laterality: Right (SRT, G-A100)
R Prox Peroneal A		Topographical Modifier: Proximal (SRT, G-A118)
R Mid Peroneal A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist Peroneal A		Topographical Modifier: Distal (SRT, G-A119)
R Pop A [Label: PV-Art]	Location: Popliteal Artery (SRT, T-47500)	Laterality: Right (SRT, G-A100)
R Prox Pop A		Topographical Modifier: Proximal (SRT, G-A118)
R Mid Pop A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist Pop A		Topographical Modifier: Distal (SRT, G-A119)
R Post Tib A [Label: PV-Art]	Location: Posterior Tibial Artery (SRT, T-47600)	Laterality: Right (SRT, G-A100)
R Prox Post Tib A		Topographical Modifier: Proximal (SRT, G-A118)
R Mid Post Tib A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist Post Tib A		Topographical Modifier: Distal (SRT, G-A119)
R PFA [Label: PV-Art]	Location: Profunda Femoris Artery (SRT, T-47440)	Laterality: Right (SRT, G-A100)
R Prox PFA		Topographical Modifier: Proximal (SRT, G-A118)
R Mid PFA		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist PFA		Topographical Modifier: Distal (SRT, G-A119)
R SFA [Label: PV-Art]	Location: Superficial Femoral Artery (SRT, T-47403)	Laterality: Right (SRT, G-A100)
R Prox SFA		Topographical Modifier: Proximal (SRT, G-A118)
R Mid SFA		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist SFA		Topographical Modifier: Distal (SRT, G-A119)
R T-P Trunk A [Label: PV-Art]	Location: Tibial-Peroneal Trunk Artery (99SIEMENS, TibPeronTrnkA)	Laterality: Right (SRT, G-A100)
R Prox T-P Trunk A		Topographical Modifier: Proximal (SRT, G-A118)
R Mid T-P Trunk A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist T-P Trunk A		Topographical Modifier: Distal (SRT, G-A119)

12.10 Artery of Upper Extremity (Left Side)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Artery of Upper Extremity	Finding Site: Artery of Upper Extremity (SRT, T-47020)	Laterality: Left (SRT, G-A101)
L Axillary A [Label: PV-Art]	Location: Axillary Artery (SRT, T-47100)	Laterality: Left (SRT, G-A101)
L Prox Axillary A		Topographical Modifier: Proximal (SRT, G-A118)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
L Mid Axillary A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist Axillary A		Topographical Modifier: Distal (SRT, G-A119)
L Brachial A [Label: PV-Art]	Location: Brachial Artery (SRT, T-47160)	Laterality: Left (SRT, G-A101)
L Prox Brachial A		Topographical Modifier: Proximal (SRT, G-A118)
L Mid Brachial A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist Brachial A		Topographical Modifier: Distal (SRT, G-A119)
L Deep Brachial A [Label: PV-Art]	Location: Deep Brachial Artery (99SIEMENS, DeepBrachialA)	Laterality: Left (SRT, G-A101)
L Prox Deep Brachial A		Topographical Modifier: Proximal (SRT, G-A118)
L Mid Deep Brachial A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist Deep Brachial A		Topographical Modifier: Distal (SRT, G-A119)
L Radial A [Label: PV-Art]	Location: Radial Artery (SRT, T-47300)	Laterality: Left (SRT, G-A101)
L Prox Radial A		Topographical Modifier: Proximal (SRT, G-A118)
L Mid Radial A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist Radial A		Topographical Modifier: Distal (SRT, G-A119)
L Subclav A [Label: PV-Art]	Location: Subclavian Artery (SRT, T-46100)	Laterality: Left (SRT, G-A101)
L Prox Subclav A		Topographical Modifier: Proximal (SRT, G-A118)
L Mid Subclav A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist Subclav A		Topographical Modifier: Distal (SRT, G-A119)
L Ulnar A [Label: PV-Art]	Location: Ulnar Artery (SRT, T-47200)	Laterality: Left (SRT, G-A101)
L Prox Ulnar A		Topographical Modifier: Proximal (SRT, G-A118)
L Mid Ulnar A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist Ulnar A		Topographical Modifier: Distal (SRT, G-A119)

12.11 Artery of Upper Extremity (Right Side)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Artery of Upper Extremity	Finding Site: Artery of Upper Extremity (SRT, T-47020)	Laterality: Right (SRT, G-A100)
R Axillary A [Label: PV-Art]	Location: Axillary Artery (SRT, T-47100)	Laterality: Right (SRT, G-A100)
R Prox Axillary A		Topographical Modifier: Proximal (SRT, G-A118)
R Mid Axillary A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist Axillary A		Topographical Modifier: Distal (SRT, G-A119)
R Brachial A [Label: PV-Art]	Location: Brachial Artery (SRT, T-47160)	Laterality: Right (SRT, G-A100)
R Prox Brachial A		Topographical Modifier: Proximal (SRT, G-A118)
R Mid Brachial A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist Brachial A		Topographical Modifier: Distal (SRT, G-A119)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
R Deep Brach A [Label: PV-Art]	Location: Deep Brachial Artery (99SIEMENS, DeepBrachialA)	Laterality: Right (SRT, G-A100)
R Prox Deep Brach A		Topographical Modifier: Proximal (SRT, G-A118)
R Mid Deep Brach A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist Deep Brach A		Topographical Modifier: Distal (SRT, G-A119)
Innom A [Labels: CV, PV-Art]	Location: Innominate Artery (SRT, T-46010)	Laterality: Right (SRT, G-A100)
Prox Innom A		Topographical Modifier: Proximal (SRT, G-A118)
Mid Innom A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
Dist Innom A		Topographical Modifier: Distal (SRT, G-A119)
R Radial A [Label: PV-Art]	Location: Radial Artery (SRT, T-47300)	Laterality: Right (SRT, G-A100)
R Prox Radial A		Topographical Modifier: Proximal (SRT, G-A118)
R Mid Radial A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist Radial A		Topographical Modifier: Distal (SRT, G-A119)
R Subclav A [Label: PV-Art]	Location: Subclavian Artery (SRT, T-46100)	Laterality: Right (SRT, G-A100)
R Prox Subclav A		Topographical Modifier: Proximal (SRT, G-A118)
R Mid Subclav A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist Subclav A		Topographical Modifier: Distal (SRT, G-A119)
R Ulnar A [Label: PV-Art]	Location: Ulnar Artery (SRT, T-47200)	Laterality: Right (SRT, G-A100)
R Prox Ulnar A		Topographical Modifier: Proximal (SRT, G-A118)
R Mid Ulnar A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist Ulnar A		Topographical Modifier: Distal (SRT, G-A119)

12.12 Vascular Structure of Kidney (Left Side)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Vascular Structure of Kidney	Finding Site: Vascular Structure Of Kidney (SRT, T-71019)	Laterality: Left (SRT, G-A101)
Arcuate A [Label: Renal]	Location: Arcuate Artery of the Kidney (SRT, T-4668A)	Laterality: Left (SRT, G-A101)
Interlobar A [Label: Renal]	Location: Interlobar Artery of Kidney (SRT, T-4667D)	Laterality: Left (SRT, G-A101)
L Renal A [Labels: Abd, Renal]	Location: Renal Artery (SRT, T-46600)	Laterality: Left (SRT, G-A101)
L Prox Renal A		Topographical Modifier: Proximal (SRT, G-A118)
L Mid Renal A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist Renal A		Topographical Modifier: Distal (SRT, G-A119)
L Renal V [Labels: Abd, Renal]	Location: Renal Vein (SRT, T-48740)	Laterality: Left (SRT, G-A101)
L Prox Renal V		Topographical Modifier: Proximal (SRT, G-A118)
L Mid Renal V		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist Renal V		Topographical Modifier: Distal (SRT, G-A119)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Segmental A [Label: Renal]	Location: Segmental Artery (SRT, T-46659)	Laterality: Left (SRT, G-A101)

12.13 Vascular Structure of Kidney (Right Side)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Vascular Structure of Kidney	Finding Site: Vascular Structure of Kidney (SRT, T-71019)	Laterality: Right (SRT, G-A100)
Arcuate A [Label: Renal]	Location: Arcuate Artery of the Kidney (SRT, T-4668A)	Laterality: Right (SRT, G-A100)
Interlobar A [Label: Renal]	Location: Interlobar Artery of Kidney (SRT, T-4667D)	Laterality: Right (SRT, G-A100)
R Renal A [Labels: Abd, Renal]	Location: Renal Artery (SRT, T-46600)	Laterality: Right (SRT, G-A100)
R Prox Renal A		Topographical Modifier: Proximal (SRT, G-A118)
R Mid Renal A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist Renal A		Topographical Modifier: Distal (SRT, G-A119)
R Renal V [Labels: Abd, Renal]	Location: Renal Vein (SRT, T-48740)	Laterality: Right (SRT, G-A100)
R Prox Renal V		Topographical Modifier: Proximal (SRT, G-A118)
R Mid Renal V		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist Renal V		Topographical Modifier: Distal (SRT, G-A119)
Segmental A [Label: Renal]	Location: Segmental Artery (SRT, T-46659)	Laterality: Right (SRT, G-A100)

12.14 Artery of Abdomen (Unilateral)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Artery of Abdomen	Finding Site: Artery of Abdomen (SRT, T-46002)	Laterality: Unilateral (SRT, G-C171)
Aorta [Labels: Abd, CV, Renal] Abd Aorta [Labels: PV-Art]	Location: Aorta (SRT, T-42000)	
Prox Aorta Prox Abd. Aorta		Topographical Modifier: Proximal (SRT, G-A118)
Mid Aorta Mid Abd. Aorta		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
Dist Aorta Dist Abd. Aorta		Topographical Modifier: Distal (SRT, G-A119)
Celiac A [Label: Abd]	Location: Celiac Axis (SRT, T-46400)	
Common Heptatic Artery [Label: Abd]	Location: Common Hepatic Artery (SRT, T-46421)	
Prox Hepatic A		Topographical Modifier: Proximal (SRT, G-A118)
Mid Hepatic A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
Dist Hepatic A		Topographical Modifier: Distal (SRT, G-A119)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Gastric A [Label: Abd]	Location: Gastric Artery (SRT, T-46410)	
Prox Gastric A		Topographical Modifier: Proximal (SRT, G-A118)
Mid Gastric A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
Dist Gastric A		Topographical Modifier: Distal (SRT, G-A119)
Inferior Mesenteric Artery [Label: Abd]	Location: Inferior Mesenteric Artery (SRT, T-46520)	
Prox IMA		Topographical Modifier: Proximal (SRT, G-A118)
Mid IMA		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
Dist IMA		Topographical Modifier: Distal (SRT, G-A119)
Splenic Artery [Label: Abd]	Location: Splenic Artery (SRT, T-46460)	
Prox Splenic A		Topographical Modifier: Proximal (SRT, G-A118)
Mid Splenic A		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
Dist Splenic A		Topographical Modifier: Distal (SRT, G-A119)
Superior Mesenteric Artery [Label: Abd]	Location: Superior Mesenteric Artery (SRT, T-46510)	
Prox SMA		Topographical Modifier: Proximal (SRT, G-A118)
Mid SMA		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
Dist SMA		Topographical Modifier: Distal (SRT, G-A119)
Bifurcation A [Label: Abd]	Location: Bifurcation Artery (99SIEMENS, BifurA)	

12.15 Vein of Abdomen (Left Side)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Vein of Abdomen	Finding Site: Vein of Abdomen (SRT, T-487A0)	Laterality: Left (SRT, G-A101)
Iliac V [Label: Abd]	Location: Common Iliac Vein (SRT, T-48920)	
L Prox Iliac V		Topographical Modifier: Proximal (SRT, G-A118)
L Mid Iliac V		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist Iliac V		Topographical Modifier: Distal (SRT, G-A119)

12.16 Vein of Abdomen (Right Side)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Vein of Abdomen	Finding Site: Vein of Abdomen (SRT, T-487A0)	Laterality: Right (SRT, G-A100)
Iliac V [Label: Abd]	Location: Common Iliac Vein (SRT, T-48920)	
R Prox Iliac V		Topographical Modifier: Proximal (SRT, G-A118)
R Mid Iliac V		Topographical Modifier: Mid-longitudinal (SRT, G-A188)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
R Dist Iliac V		Topographical Modifier: Distal (SRT, G-A119)

12.17 Vein of Abdomen (Unilateral)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Vein of Abdomen	Finding Site: Vein of Abdomen (SRT, T-487A0)	Laterality: Unilateral (SRT, G-C171)
Left Hepatic Vein [Label: Abd]	Location: Left Hepatic Vein (SRT, T-48727)	
L Prox Hepatic V		Topographical Modifier: Proximal (SRT, G-A118)
L Mid Hepatic V		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
L Dist Hepatic V		Topographical Modifier: Distal (SRT, G-A119)
Middle Hepatic Vein [Label: Abd]	Location: Middle Hepatic Vein (SRT, T-48726)	
M Prox Hepatic V		Topographical Modifier: Proximal (SRT, G-A118)
M Mid Hepatic V		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
M Dist Hepatic V		Topographical Modifier: Distal (SRT, G-A119)
Right Hepatic Vein [Label: Abd]	Location: Right Hepatic Vein (SRT, T-48725)	
R Prox Hepatic V		Topographical Modifier: Proximal (SRT, G-A118)
R Mid Hepatic V		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist Hepatic V		Topographical Modifier: Distal (SRT, G-A119)
Portal Vein [Label: Abd]	Location:Portal Vein (SRT, T-488810)	
Prox Portal V		Topographical Modifier: Proximal (SRT, G-A118)
Mid Portal V		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
Dist Portal V		Topographical Modifier: Distal (SRT, G-A119)
Inferior Vena Cava [Labels: Abd, Renal]	Location: Inferior Vena Cava (SRT, T-48710)	
Prox IVC		Topographical Modifier: Proximal (SRT, G-A118)
Mid IVC		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
Dist IVC		Topographical Modifier: Distal (SRT, G-A119)
Splenic Vein [Label: Abd]	Location: Splenic Vein (SRT, T-48890)	
Prox Splenic V		Topographical Modifier: Proximal (SRT, G-A118)
Mid Splenic V		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
Dist Splenic V		Topographical Modifier: Distal (SRT, G-A119)
Superior Mesenteric Vein [Label: Abd]	Location: Superior Mesenteric Vein (SRT, T-48840)	
Prox SMV		Topographical Modifier: Proximal (SRT, G-A118)
Mid SMV		Topographical Modifier: Mid-longitudinal (SRT, G-A188)
Dist SMV		Topographical Modifier: Distal (SRT, G-A119)

12.18 Ultrasound Graft

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Ultrasound Graft	Finding Site: Vascular Graft (SRT, T-D000F)	
Left Abominal Anastomosis Artery [Label: Abd]	Location: Abdominal Anastomosis Artery (99SIEMENS, AbdAnastA)	Laterality: Left (SRT, G-A101)
L Prox Abd Anast A		Location: Proximal Anastomosis (SRT, G-D871)
L Mid Abd Anast A		Location: Middle Anastomosis (99SIEMENS, MidAnast)
L Dist Abd Anast A		Location: Distal Anastomosis (SRT, G-D872)
Right Abominal Anastomosis Artery [Label: Abd]	Location: Abdominal Anastomosis Artery (99SIEMENS, AbdAnastA)	Laterality: Right (SRT, G-A100)
R Prox Abd Anast A		Location: Proximal Anastomosis (SRT, G-D871)
R Mid Abd Anast A		Location: Middle Anastomosis (99SIEMENS, MidAnast)
R Dist Abd Anast A		Location: Distal Anastomosis (SRT, G-D872)
Left Abominal Anastomosis Vein [Label: Abd]	Location: Abdominal Anastomosis Vein (99SIEMENS, AbdAnastV)	Laterality: Left (SRT, G-A101)
L Prox Abd Anast V		Location: Proximal Anastomosis (SRT, G-D871)
L Mid Abd Anast V		Location: Middle Anastomosis (99SIEMENS, MidAnast)
L Dist Abd Anast V		Location: Distal Anastomosis (SRT, G-D872)
Right Abominal Anastomosis Vein [Label: Abd]	Location: Abdominal Anastomosis Vein (99SIEMENS, AbdAnastV)	Laterality: Right (SRT, G-A100)
R Prox Abd Anast V		Location: Proximal Anastomosis (SRT, G-D871)
R Mid Abd Anast V		Location: Middle Anastomosis (99SIEMENS, MidAnast)
R Dist Abd Anast V		Location: Distal Anastomosis (SRT, G-D872)
Left Renal Anastomosis Artery [Label: Renal]	Location: Renal Anastomosis Artery (99SIEMENS, RenalAnastA)	Laterality: Left (SRT, G-A101)
L Prox Renal Anast A		Location: Proximal Anastomosis (SRT, G-D871)
L Mid Renal Anast A		Location: Middle Anastomosis (99SIEMENS, MidAnast)
L Dist Renal Anast A		Location: Distal Anastomosis (SRT, G-D872)
Right Renal Anastomosis Artery [Label: Renal]	Location: Renal Anastomosis Artery (99SIEMENS, RenalAnastA)	Laterality: Right (SRT, G-A100)
R Prox Renal Anast A		Location: Proximal Anastomosis (SRT, G-D871)
R Mid Renal Anast A		Location: Middle Anastomosis (99SIEMENS, MidAnast)
R Dist Renal Anast A		Location: Distal Anastomosis (SRT, G-D872)
Left Renal Anastomosis Vein [Label: Renal]	Location: Renal Anastomosis Vein (99SIEMENS, RenalAnastV)	Laterality: Left (SRT, G-A101)
L Prox Renal Anast V		Location: Proximal Anastomosis (SRT, G-D871)
L Mid Renal Anast V		Location: Middle Anastomosis (99SIEMENS, MidAnast)

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
L Dist Renal Anast V		Location: Distal Anastomosis (SRT, G-D872)
Right Renal Anastomosis Vein [Label: Renal]	Location: Renal Anastomosis Vein (99SIEMENS, RenalAnastV)	Laterality: Right (SRT, G-A100)
R Prox Renal Anast V		Location: Proximal Anastomosis (SRT, G-D871)
R Mid Renal Anast V		Location: Middle Anastomosis (99SIEMENS, MidAnast)
R Dist Renal Anast V		Location: Distal Anastomosis (SRT, G-D872)

12.19 Private Section: Mixed Carotid Ratios

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Mixed Carotid Ratios	Container: Mixed Carotid Ratios Section (99SIEMENS, MxCarotidRatios)	
R Prox CCA / L Prox CCA	Right CCA/Left CCA (99SIEMENS, RCCAoverLCCA)	Topographical Modifier: Proximal (SRT, G-A118)
R Mid CCA / L Mid CCA	Right CCA/Left CCA (99SIEMENS, RCCAoverLCCA)	Topographical Modifier: Mid-longitudinal (SRT, G-A188)
R Dist CCA / L Dist CCA	Right CCA/Left CCA (99SIEMENS, RCCAoverLCCA)	Topographical Modifier: Distal (SRT, G-A119)

12.20 Private Section: Kidney

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Kidney	Container: Kidney (99SIEMENS, Kidney)	
L Kidney	Left Kidney Distance (99SIEMENS, LKidneyDist)	
L Kidney Mean [2D-Mode]	Left Kidney Distance (99SIEMENS, LKidneyDist)	Derivation: Mean (SRT, R-00317)
L Kidney V	Left Kidney Volume (99SIEMENS, LKidneyVol)	
L Kidney Mean [Volume]	Left Kidney Volume (99SIEMENS, LKidneyVol)	Derivation: Mean (SRT, R-00317)
L Kidney D1	Left Kidney Volume: Distance 1 (99SIEMENS, LKidneyVolD1)	
L Kidney D2	Left Kidney Volume: Distance 2 (99SIEMENS, LKidneyVolD2)	
L Kidney D3	Left Kidney Volume: Distance 3 (99SIEMENS, LKidneyVolD3)	
R Kidney	Right Kidney Distance (99SIEMENS, RKidneyDist)	
R Kidney Mean [2D-Mode]	Right Kidney Distance (99SIEMENS, RKidneyDist)	Derivation: Mean (SRT, R-00317)
R Kidney V	Right Kidney Volume (99SIEMENS, RKidneyVol)	
R Kidney Mean [Volume]	Right Kidney Volume (99SIEMENS, RKidneyVol)	Derivation: Mean (SRT, R-00317)
R Kidney D1	Right Kidney Volume: Distance 1 (99SIEMENS, RKidneyVolD1)	
R Kidney D2	Right Kidney Volume: Distance 2 (99SIEMENS, RKidneyVolD2)	
R Kidney D3	Right Kidney Volume: Distance 3 (99SIEMENS, RKidneyVolD3)	

12.21 Private Section: Ureter

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Ureter	Container: Ureter (99SIEMENS, Ureter)	
L Ureter	Left Ureter Distance (99SIEMENS, LUreterDist)	
L Ureter Mean	Left Ureter Distance (99SIEMENS, LUreterDist)	Derivation: Mean (SRT, R-00317)
R Ureter	Right Ureter Distance (99SIEMENS, RUreterDist)	
R Ureter Mean	Right Ureter Distance (99SIEMENS, RUreterDist)	Derivation: Mean (SRT, R-00317)

12.22 Private Section: Bladder

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Bladder	Container: Bladder (99SIEMENS, Bladder)	
Micturated	Micturated Volume (99SIEMENS, MicturatedVol)	
PreVoid Bld V	Pre-Void Volume (99SIEMENS, PreVoidVol)	
PreVoid Bld Mean	Pre-Void Volume (99SIEMENS, PreVoidVol)	Derivation: Mean (SRT, R-00317)
PreVoid Bld D1	Pre-Void Volume: Distance 1 (99SIEMENS, PreVoidVolD1)	
PreVoid Bld D2	Pre-Void Volume: Distance 2 (99SIEMENS, PreVoidVolD2)	
PreVoid Bld D3	Pre-Void Volume: Distance 3 (99SIEMENS, PreVoidVolD3)	
PostVoid Bld V	Post-Void Volume (99SIEMENS, PostVoidVol)	
PostVoid Bld Mean	Post-Void Volume (99SIEMENS, PostVoidVol)	Derivation: Mean (SRT, R-00317)
PostVoid Bld D1	Post-Void Volume: Distance 1 (99SIEMENS, PostVoidVolD1)	
PostVoid Bld D2	Post-Void Volume: Distance 2 (99SIEMENS, PostVoidVolD2)	
PostVoid Bld D3	Post-Void Volume: Distance 3 (99SIEMENS, PostVoidVolD3)	

12.23 Private Section: Liver, Gall Bladder, Pancreas

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Liver, Gall Bladder, Pancreas	Container: Liver, Gall Bladder, Pancreas (99SIEMENS, LiverGallBPancr)	
Liver	Liver Distance (99SIEMENS, LiverDist)	
Liver Mean [2D-Mode]	Liver Distance (99SIEMENS, LiverDist)	Derivation: Mean (SRT, R-00317)
Liver V	Liver Volume (99SIEMENS, LiverVol)	
Liver Mean [Volume]	Liver Volume (99SIEMENS, LiverVol)	Derivation: Mean (SRT, R-00317)
Liver D1	Liver Volume: Distance 1 (99SIEMENS, LiverVolD1)	
Liver D2	Liver Volume: Distance 2 (99SIEMENS, LiverVolD2)	

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Liver D3	Liver Volume: Distance 3 (99SIEMENS, LiverVolD3)	
CHD	Common Hepatic Duct Distance (99SIEMENS, CHDuctDist)	
CHD Mean	Common Hepatic Duct Distance (99SIEMENS, CHDuctDist)	Derivation: Mean (SRT, R-00317)
CBD	Common Bile Duct Distance (99SIEMENS, CBDuctDist)	
CBD Mean	Common Bile Duct Distance (99SIEMENS, CBDuctDist)	Derivation: Mean (SRT, R-00317)
GB Wall	Gall Bladder Wall Thickness (99SIEMENS, GallBWallThk)	
GB Wall Mean	Gall Bladder Wall Thickness (99SIEMENS, GallBWallThk)	Derivation: Mean (SRT, R-00317)
Panc duct	Pancreatic Duct Distance (99SIEMENS, PancrDuctDist)	
Panc duct Mean	Pancreatic Duct Distance (99SIEMENS, PancrDuctDist)	Derivation: Mean (SRT, R-00317)

12.24 Private Section: Spleen

Label	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Spleen	Container: Spleen (99SIEMENS, Spleen)	
Spleen	Spleen Distance (99SIEMENS, SpleenDist)	
Spleen Mean [2D-Mode]	Spleen Distance (99SIEMENS, SpleenDist)	Derivation: Mean (SRT, R-00317)
Spleen V	Spleen Volume (99SIEMENS, SpleenVol)	
Spleen Mean [Volume]	Spleen Volume (99SIEMENS, SpleenVol)	Derivation: Mean (SRT, R-00317)
Spleen D1	Spleen Volume: Distance 1 (99SIEMENS, SpleenVolD1)	
Spleen D2	Spleen Volume: Distance 2 (99SIEMENS, SpleenVolD2)	
Spleen D3	Spleen Volume: Distance 3 (99SIEMENS, SpleenVolD3)	

13.0 Appendix C: Echocardiography Structured Report

This appendix lists the DICOM Structured Report (SR) mappings used in the Cardiac Structured Reports of ACUSON S2000 system SR files, version 1.0.

The mappings are organized in a manner similar to the DICOM SR Templates as described in PS 3.16-2008 of the DICOM Standard. The "Label" column identifies the on-screen report label associated with a measurement. All private code values use the Coding Scheme Designator "99SIEMENSUS".

Measurements from private measurement packages are identified by the concept modifier:

HAS CONCEPT MOD (MeasPackage, 99SIEMENSUS, "Measurement Package Membership")

The Adult Echocardiography Report mappings follow the DICOM SR Template TID 5200: Echocardiography Procedure Report. The Qp-Qs and Qp/Qs measurements that are displayed on the report page are not available in the SR.

Notation:

[…] is additional information about the label

13.1 Left Ventricle

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Aortic Valve: CI	Cardiac Index (SRT, F-32110)	Finding Site: Left Ventricle Outflow Tract (SRT, T-32650) Measurement Method: Doppler Volume Flow (DCM, 125219)
Aortic Valve: CO	Cardiac Output (SRT, F-32100)	Finding Site: Left Ventricle Outflow Tract (SRT, T-32650) Measurement Method: Doppler Volume Flow (DCM, 125219)
Aortic Valve: IVRT Mitral Valve: IVRT	Left Ventricular Isovolumic Relaxation Time (LN, 18071-1)	
Aortic Valve: LVOT diam Mitral Valve: LVOT diam	Cardiovascular Orifice Diameter (SRT, G-038F)	Finding Site: Left Ventricle Outflow Tract (SRT, T-32650)
Aortic Valve: LVOT PGmax	Peak Gradient (LN, 20247-3)	Finding Site: Left Ventricle Outflow Tract (SRT, T-32650) Direction of Flow: Antegrade Flow (SRT, R-42047)
Aortic Valve: LVOT PGmean	Mean Gradient (LN, 20256-4)	Finding Site: Left Ventricle Outflow Tract (SRT, T-32650) Direction of Flow: Antegrade Flow (SRT, R-42047)
Aortic Valve: LVOT Vmax	Peak Systolic Velocity (LN, 11726-7)	Finding Site: Left Ventricle Outflow Tract (SRT, T-32650) Direction of Flow: Antegrade Flow (SRT, R-42047)
Aortic Valve: LVOT Vmean	Mean Velocity (LN, 20352-1)	Finding Site: Left Ventricle Outflow Tract (SRT, T-32650) Direction of Flow: Antegrade Flow (SRT, R-42047)
Aortic Valve: LVOT VTI Mitral Valve: LVOT VTI	Velocity Time Integral (LN, 20354-7)	Finding Site: Left Ventricle Outflow Tract (SRT, T-32650) Direction of Flow: Antegrade Flow (SRT, R-42047)

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Aortic Valve: SI	Stroke Index (SRT, F-00078)	Finding Site: Left Ventricle Outflow Tract (SRT, T-32650) Measurement Method: Doppler Volume Flow (DCM, 125219)
Aortic Valve: SV	Stroke Volume (SRT, F-32120)	Finding Site: Left Ventricle Outflow Tract (SNM3, T-32650) Measurement Method: Doppler Volume Flow (DCM, 125219)
Aortic Valve: VSD PGmax	Peak Gradient (LN, 20247-3)	Finding Site: Ventricular Septal Defect (SRT, D4-31150)
Aortic Valve: VSD Vmax	Peak Systolic Velocity (LN, 11726-7)	Finding Site: Ventricular Septal Defect (SRT, D4-31150)
Mitral Valve: CO	Cardiac Output (SRT, F-32100)	Finding Site: Left Ventricle Outflow Tract (SRT, T-32650) Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER) Measurement Method: Doppler Volume Flow (DCM, 125219)
Mitral Valve: MV LVIMP	Left Ventricular Index of Myocardial Performance (SRT, G-037F)	
Mitral Valve: SV	Stroke Volume (SRT, F-32120)	Finding Site: Left Ventricle Outflow Tract (SRT, T-32650) Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER) Measurement Method: Doppler Volume Flow (DCM, 125219)
Cubed(2D): CI	Cardiac Index (SRT, F-32110)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Cube Method (DCM, 125206)
Cubed(2D): CO	Cardiac Output (SRT, F-32100)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Cube Method (DCM, 125206)
Cubed(2D): EDV	Left Ventricular End Diastolic Volume (LN, 18026-5)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Cube Method (DCM, 125206)
Cubed(2D): EF	Left Ventricular Ejection Fraction (LN, 18043-0)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Cube Method (DCM, 125206)
Cubed(2D): ESV	Left Ventricular End Systolic Volume (LN, 18148-7)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Cube Method (DCM, 125206)
Cubed(2D): FS	Left Ventricular Fractional Shortening (LN, 18051-3)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Cube Method (DCM, 125206)
Cubed(2D): HR	Heart Rate (LN, 8867-4)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Cube Method (DCM, 125206)
Cubed(2D): IVSd	Interventricular Septum Diastolic Thickness (LN, 18154-5)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Cube Method (DCM, 125206)
Cubed(2D): IVSs	Interventricular Septum Systolic Thickness (LN, 18158-6)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Cube Method (DCM, 125206)
Cubed(2D): LVIDd	Left Ventricle Internal End Diastolic Dimension (LN, 29436-3)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Cube Method (DCM, 125206)
Cubed(2D): LVIDs	Left Ventricle Internal Systolic Dimension (LN, 29438-9)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Cube Method (DCM, 125206)
Cubed(2D): LVPWd	Left Ventricle Posterior Wall Diastolic Thickness (LN, 18152-9)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Cube Method (DCM, 125206)

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Cubed(2D): LVPWs	Left Ventricle Posterior Wall Systolic Thickness (LN, 18156-0)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Cube Method (DCM, 125206)
Cubed(2D): SI	Stroke Index (SRT, F-00078)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Cube Method (DCM, 125206)
Cubed(2D): SV	Stroke Volume (SRT, F-32120)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Cube Method (DCM, 125206)
DTI: Aa(l)	LV Peak Diastolic Tissue Velocity During Atrial Systole (SRT, G-037C)	Finding Site: Lateral Mitral Annulus (SRT, G-0392)
DTI: Aa(m)	LV Peak Diastolic Tissue Velocity During Atrial Systole (SRT, G-037C)	Finding Site: Medial Mitral Annulus (SRT, G-0391)
DTI: ARa(l)	Mitral Valve DTI acceleration rate of Ea (99SIEMENSUS, CA_MV_ARa)	Finding Site: Lateral Mitral Annulus (SRT, G-0392)
DTI: ARa(m)	Mitral Valve DTI acceleration rate of Ea (99SIEMENSUS, CA_MV_ARa)	Finding Site: Medial Mitral Annulus (SRT, G-0391)
DTI: ATa(l)	Mitral Valve DTI acceleration time of Ea (99SIEMENSUS, CA_MV_ATa)	Finding Site: Lateral Mitral Annulus (SRT, G-0392)
DTI: ATa(m)	Mitral Valve DTI acceleration time of Ea (99SIEMENSUS, CA_MV_ATa)	Finding Site: Medial Mitral Annulus (SRT, G-0391)
DTI: DRa(l)	Mitral Valve DTI deceleration rate of Ea (99SIEMENSUS, CA_MV_DRa)	Finding Site: Lateral Mitral Annulus (SRT, G-0392)
DTI: DRa(m)	Mitral Valve DTI deceleration rate of Ea (99SIEMENSUS, CA_MV_DRa)	Finding Site: Medial Mitral Annulus (SRT, G-0391)
DTI: DTa(l)	Mitral Valve DTI deceleration time of Ea (99SIEMENSUS, CA_MV_DTa)	Finding Site: Lateral Mitral Annulus (SRT, G-0392)
DTI: DTa(m)	Mitral Valve DTI deceleration time of Ea (99SIEMENSUS, CA_MV_DTa)	Finding Site: Medial Mitral Annulus (SRT, G-0391)
DTI: E/Ea(l)	Ratio of MV Peak Velocity to LV Peak Tissue Velocity E-Wave (SRT, G-037B)	Finding Site: Lateral Mitral Annulus (SRT, G-0392)
DTI: E/Ea(m)	Ratio of MV Peak Velocity to LV Peak Tissue Velocity E-Wave (SRT, G-037B)	Finding Site: Medial Mitral Annulus (SRT, G-0391)
DTI: Ea(l)	Left Ventricular Peak Early Diastolic Tissue Velocity (SRT, G-037A)	Finding Site: Lateral Mitral Annulus (SRT, G-0392)
DTI: Ea(m)	Left Ventricular Peak Early Diastolic Tissue Velocity (SRT, G-037A)	Finding Site: Medial Mitral Annulus (SRT, G-0391)
DTI: Ea/Aa(l)	Mitral Valve DTI Ea to Aa Ratio (99SIEMENSUS, CA_MV_Ea2Aa)	Finding Site: Lateral Mitral Annulus (SRT, G-0392)
DTI: Ea/Aa(m)	Mitral Valve DTI Ea to Aa Ratio (99SIEMENSUS, CA_MV_Ea2Aa)	Finding Site: Medial Mitral Annulus (SRT, G-0391)
DTI: Sa(l)	Left Ventricular Peak Systolic Tissue Velocity (SRT, G-037D)	Finding Site: Lateral Mitral Annulus (SRT, G-0392)
DTI: Sa(m)	Left Ventricular Peak Systolic Tissue Velocity (SRT, G-037D)	Finding Site: Medial Mitral Annulus (SRT, G-0391)
LV/Cubed(M): CI	Cardiac Index (SRT, F-32110)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Cube Method (DCM, 125206)
LV/Cubed(M): CO	Cardiac Output (SRT, F-32100)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Cube Method (DCM, 125206)
LV/Cubed(M): EDV	Left Ventricular End Diastolic Volume (LN, 18026-5)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Cube Method (DCM, 125206)

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
LV/Cubed(M): EF	Left Ventricular Ejection Fraction (LN, 18043-0)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Cube Method (DCM, 125206)
LV/Cubed(M): ESV	Left Ventricular End Systolic Volume (LN, 18148-7)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Cube Method (DCM, 125206)
LV/Cubed(M): FS	Left Ventricular Fractional Shortening (LN, 18051-3)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Cube Method (DCM, 125206)
LV/Cubed(M): HR	Heart Rate (LN, 8867-4)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Cube Method (DCM, 125206)
LV/Cubed(M): IVSd	Interventricular Septum Diastolic Thickness (LN, 18154-5)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Cube Method (DCM, 125206)
LV/Cubed(M): IVSs	Interventricular Septum Systolic Thickness (LN, 18158-6)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Cube Method (DCM, 125206)
LV/Cubed(M): LV MASS	Left Ventricle Mass (LN, 18087-7)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Cube Method (DCM, 125206)
LV/Cubed(M): LV MASS-c	Left Ventricle Mass corrected (99SIEMENSUS, CA_LV_MASSc)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Cube Method (DCM, 125206)
LV/Cubed(M): LV MASS-I	Left Ventricle Mass (LN, 18087-7)	Image Mode: M-Mode (SRT, G-0394) Index: Body Surface Area (LN, 8277-6) Measurement Method: Cube Method (DCM, 125206)
LV/Cubed(M): LVIDd	Left Ventricle Internal End Diastolic Dimension (LN, 29436-3)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Cube Method (DCM, 125206)
LV/Cubed(M): LVIDs	Left Ventricle Internal Systolic Dimension (LN, 29438-9)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Cube Method (DCM, 125206)
LV/Cubed(M): LVPWd	Left Ventricle Posterior Wall Diastolic Thickness (LN, 18152-9)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Cube Method (DCM, 125206)
LV/Cubed(M): LVPWs	Left Ventricle Posterior Wall Systolic Thickness (LN, 18156-0)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Cube Method (DCM, 125206)
LV/Cubed(M): mVcf	Systolic Index (99SIEMENSUS, CA_LF_VCF)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Cube Method (DCM, 125206)
LV/Cubed(M): SI	Stroke Index (SRT, F-00078)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Cube Method (DCM, 125206)
LV/Cubed(M): SV	Stroke Volume (SRT, F-32120)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Cube Method (DCM, 125206)
LV/Teichholz(M): CI	Cardiac Index (SRT, F-32110)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Teichholz (DCM, 125209)
LV/Teichholz(M): CO	Cardiac Output (SRT, F-32100)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Teichholz (DCM, 125209)

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
LV/Teichholz(M): EDV	Left Ventricular End Diastolic Volume (LN, 18026-5)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Teichholz (DCM, 125209)
LV/Teichholz(M): EF	Left Ventricular Ejection Fraction (LN, 18043-0)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Teichholz (DCM, 125209)
LV/Teichholz(M): ESV	Left Ventricular End Systolic Volume (LN, 18148-7)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Teichholz (DCM, 125209)
LV/Teichholz(M): FS	Left Ventricular Fractional Shortening (LN, 18051-3)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Teichholz (DCM, 125209)
LV/Teichholz(M): HR	Heart Rate (LN, 8867-4)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Teichholz (DCM, 125209)
LV/Teichholz(M): IVSd	Interventricular Septum Diastolic Thickness (LN, 18154-5)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Teichholz (DCM, 125209)
LV/Teichholz(M): IVSs	Interventricular Septum Systolic Thickness (LN, 18158-6)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Teichholz (DCM, 125209)
LV/Teichholz(M): LV MASS	Left Ventricle Mass (LN, 18087-7)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Teichholz (DCM, 125209)
LV/Teichholz(M): LV MASS-c	Left Ventricle Mass corrected (99SIEMENSUS, CA_LV_MASSc)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Teichholz (DCM, 125209)
LV/Teichholz(M): LV MASS-I	Left Ventricle Mass (LN, 18087-7)	Image Mode: M-Mode (SRT, G-0394) Index: Body Surface Area (LN, 8277-6) Measurement Method: Teichholz (DCM, 125209)
LV/Teichholz(M): LVIDd	Left Ventricle Internal End Diastolic Dimension (LN, 29436-3)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Teichholz (DCM, 125209)
LV/Teichholz(M): LVIDs	Left Ventricle Internal Systolic Dimension (LN, 29438-9)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Teichholz (DCM, 125209)
LV/Teichholz(M): LVPWd	Left Ventricle Posterior Wall Diastolic Thickness (LN, 18152-9)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Teichholz (DCM, 125209)
LV/Teichholz(M): LVPWs	Left Ventricle Posterior Wall Systolic Thickness (LN, 18156-0)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Teichholz (DCM, 125209)
LV/Teichholz(M): mVcf	Systolic Index (99SIEMENSUS, CA_LF_VCF)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Teichholz (DCM, 125209)
LV/Teichholz(M): SI	Stroke Index (SRT, F-00078)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Teichholz (DCM, 125209)
LV/Teichholz(M): SV	Stroke Volume (SRT, F-32120)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Teichholz (DCM, 125209)

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
LV MASS A-L: A Sax Endo	Left Ventricular Diastolic Area (SRT, G-0375)	Image Mode: 2D mode (SRT, G-03A2) Image View: Parasternal Short Axis at the Papillary Muscle Level (SRT, G-039B) Measurement Method: Left Ventricle Mass by Area Length (99SIEMENSUS, LVMassAL)
LV MASS A-L: A Sax Epi	Left Ventricle Epicardial Diastolic Area, psax pap view (SRT, G-0379)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Left Ventricle Mass by Area Length (99SIEMENSUS, LVMassAL)
LV MASS A-L: LV MASS	Left Ventricle Mass (LN, 18087-7)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Left Ventricle Mass by Area Length (99SIEMENSUS, LVMassAL)
LV MASS A-L: LV MASS-I	Left Ventricle Mass (LN, 18087-7)	Image Mode: 2D mode (SRT, G-03A2) Index: Body Surface Area (LN, 8277-6) Measurement Method: Left Ventricle Mass by Area Length (99SIEMENSUS, LVMassAL)
LV MASS A-L: LVL	Left Ventricle Diastolic Major Axis (LN, 18077-8)	Image Mode: 2D mode (SRT, G-03A2)
LV MASS A-L: t	Myocardial Thickness calculated from Short Axis Epicardial and Cavity Areas (99SIEMENSUS, CA_LV_MyoTh)	Image Mode: 2D mode (SRT, G-03A2)
LV MASS T-E: a	Left Ventricle Semi-major Axis Diastolic Dimension (SRT, G-0377)	Measurement Method: Left Ventricle Mass by Truncated Ellipse (DCM, 125222)
LV MASS T-E: A Sax Endo	Left Ventricular Diastolic Area (SRT, G-0375)	Image View: Parasternal Short Axis at the Papillary Muscle Level (SRT, G-039B) Measurement Method: Left Ventricle Mass by Truncated Ellipse (DCM, 125222)
LV MASS T-E: A Sax Epi	Left Ventricle Epicardial Diastolic Area, psax pap view (SRT, G-0379)	Measurement Method: Left Ventricle Mass by Truncated Ellipse (DCM, 125222)
LV MASS T-E: b	Short axis radius calculated from short axis cavity area (99SIEMENSUS, CA_LV_RadSAX)	Measurement Method: Left Ventricle Mass by Truncated Ellipse (DCM, 125222)
LV MASS T-E: d	Left Ventricle Truncated Semi-major Axis Diastolic Dimension (SRT, G-0378)	Measurement Method: Left Ventricle Mass by Truncated Ellipse (DCM, 125222)
LV MASS T-E: LV Mass	Left Ventricle Mass (LN, 18087-7)	Measurement Method: Left Ventricle Mass by Truncated Ellipse (DCM, 125222)
LV MASS T-E: LV Mass-I	Left Ventricle Mass (LN, 18087-7)	Index: Body Surface Area (LN, 8277-6) Measurement Method: Left Ventricle Mass by Truncated Ellipse (DCM, 125222)
LV MASS T-E: t	Myocardial Thickness calculated from short axis epicardial and cavity areas (99SIEMENSUS, CA_LV_MyoTh)	Measurement Method: Left Ventricle Mass by Truncated Ellipse (DCM, 125222)
Simpson BP: CI	Cardiac Index (SRT, F-32110)	Measurement Method: Method of Disks, Biplane (DCM, 125207)
Simpson BP: CI2	Cardiac Index (SRT, F-32110)	Image View: Apical Two Chamber (SRT, G-A19B) Measurement Method: Method of Disks, Biplane (DCM, 125207)

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Simpson BP: CI4	Cardiac Index (SRT, F-32110)	Image View: Apical Four Chamber (SRT, G-A19C) Measurement Method: Method of Disks, Biplane (DCM, 125207)
Simpson BP: CO	Cardiac Output (SRT, F-32100)	Measurement Method: Method of Disks, Biplane (DCM, 125207)
Simpson BP: CO2	Cardiac Output (SRT, F-32100)	Image View: Apical Two Chamber (SRT, G-A19B) Measurement Method: Method of Disks, Biplane (DCM, 125207)
Simpson BP: CO4	Cardiac Output (SRT, F-32100)	Image View: Apical Four Chamber (SRT, G-A19C) Measurement Method: Method of Disks, Biplane (DCM, 125207)
Simpson BP: difD	LV Difference (99SIEMENSUS, CA_LV_DIF)	Cardiac Cycle Point: End Diastole (SRT, F-32011) Measurement Method: Method of Disks, Biplane (DCM, 125207)
Simpson BP: difS	LV Difference (99SIEMENSUS, CA_LV_DIF)	Cardiac Cycle Point: F-32011, SRT, End Systole Measurement Method: Method of Disks, Biplane (DCM, 125207)
Simpson BP: EDV	Left Ventricular End Diastolic Volume (LN, 18026-5)	Measurement Method: Method of Disks, Biplane (DCM, 125207)
Simpson BP: EDV2	Left Ventricular End Diastolic Volume (LN, 18026-5)	Image View: Apical Two Chamber (SRT, G-A19B) Measurement Method: Method of Disks,Biplane (DCM, 125207)
Simpson BP: EDV4	Left Ventricular End Diastolic Volume (LN, 18026-5)	Image View: Apical Four Chamber (SRT, G-A19C) Measurement Method: Method of Disks, Biplane (DCM, 125207)
Simpson BP: EF	Left Ventricular Ejection Fraction (LN, 18043-0)	Measurement Method: Method of Disks, Biplane (DCM, 125207)
Simpson BP: EF2	Left Ventricular Ejection Fraction (LN, 18043-0)	Image View: Apical Two Chamber (SRT, G-A19B) Measurement Method: Method of Disks, Biplane (DCM, 125207)
Simpson BP: EF4	Left Ventricular Ejection Fraction (LN, 18043-0)	Image View: Apical Four Chamber (SRT, G-A19C) Measurement Method: Method of Disks, Biplane (DCM, 125207)
Simpson BP: ESV	Left Ventricular End Systolic Volume (LN, 18148-7)	Measurement Method: Method of Disks, Biplane (DCM, 125207)
Simpson BP: ESV2	Left Ventricular End Systolic Volume (LN, 18148-7)	Image View: Apical Two Chamber (SRT, G-A19B) Measurement Method: Method of Disks, Biplane (DCM, 125207)
Simpson BP: ESV4	Left Ventricular End Systolic Volume (LN, 18148-7)	Image View: Apical Four Chamber (SRT, G-A19C) Measurement Method: Method of Disks, Biplane (DCM, 125207)
Simpson BP: HR	Heart Rate (LN, 8867-4)	Measurement Method: Method of Disks, Biplane (DCM, 125207)
Simpson BP: SI	Stroke Index (SRT, F-00078)	Measurement Method: Method of Disks, Biplane (DCM, 125207)
Simpson BP: SI2	Stroke Index (SRT, F-00078)	Image View: Apical Two Chamber (SRT, G-A19B) Measurement Method: Method of Disks, Biplane (DCM, 125207)
Simpson BP: SI4	Stroke Index (SRT, F-00078)	Image View: Apical Four Chamber (SRT, G-A19C) Measurement Method: Method of Disks, Biplane (DCM, 125207)
Simpson BP: SV	Stroke Volume (SRT, F-32120)	Measurement Method: Method of Disks, Biplane (DCM, 125207)
Simpson BP: SV2	Stroke Volume (SRT, F-32120)	Image View: Apical Two Chamber (SRT, G-A19B) Measurement Method: Method of Disks, Biplane (DCM, 125207)
Simpson BP: SV4	Stroke Volume (SRT, F-32120)	Image View: Apical Four Chamber (SRT, G-A19C) Measurement Method: Method of Disks, Biplane (DCM, 125207)

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Simpson SP: CI	Cardiac Index (SRT, F-32110)	Image View: Apical Four Chamber (SRT, G-A19C) Measurement Method: Method of Disks, Single Plane (DCM, 125208)
Simpson SP: CO	Cardiac Output (SRT, F-32100)	Image View: Apical Four Chamber (SRT, G-A19C) Measurement Method: Method of Disks, Single Plane (DCM, 125208)
Simpson SP: EDV	Left Ventricular End Diastolic Volume (LN, 18026-5)	Image View: Apical Four Chamber (SRT, G-A19C) Measurement Method: Method of Disks, Single Plane (DCM, 125208)
Simpson SP: EF	Left Ventricular Ejection Fraction (LN, 18043-0)	Image View: Apical Four Chamber (SRT, G-A19C) Measurement Method: Method of Disks, Single Plane (DCM, 125208)
Simpson SP: ESV	Left Ventricular End Systolic Volume (LN, 18148-7)	Image View: Apical Four Chamber (SRT, G-A19C) Measurement Method: Method of Disks, Single Plane (DCM, 125208)
Simpson SP: HR	Heart Rate (LN, 8867-4)	Measurement Method: Method of Disks, Single Plane (DCM, 125208)
Simpson SP: SI	Stroke Index (SRT, F-00078)	Image View: Apical Four Chamber (SRT, G-A19C) Measurement Method: Method of Disks, Single Plane (DCM, 125208)
Simpson SP: SV	Stroke Volume (SRT, F-32120)	Image View: Apical Four Chamber (SRT, G-A19C) Measurement Method: Method of Disks, Single Plane (DCM, 125208)
Teichholz(2D): CI	Cardiac Index (SRT, F-32110)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Teichholz (DCM, 125209)
Teichholz(2D): CO	Cardiac Output (SRT, F-32100)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Teichholz (DCM, 125209)
Teichholz(2D): EDV	Left Ventricular End Diastolic Volume (LN, 18026-5)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Teichholz (DCM, 125209)
Teichholz(2D): EF	Left Ventricular Ejection Fraction (LN, 18043-0)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Teichholz (DCM, 125209)
Teichholz(2D): ESV	Left Ventricular End Systolic Volume (LN, 18148-7)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Teichholz (DCM, 125209)
Teichholz(2D): FS	Left Ventricular Fractional Shortening(LN, 18051-3)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Teichholz (DCM, 125209)
Teichholz(2D): HR	Heart Rate (LN, 8867-4)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Teichholz (DCM, 125209)
Teichholz(2D): IVSd	Interventricular Septum Diastolic Thickness (LN, 18154-5)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Teichholz (DCM, 125209)

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Teichholz(2D): IVSs	Interventricular Septum Systolic Thickness (LN, 18158-6)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Teichholz (DCM, 125209)
Teichholz(2D): LVIDd	Left Ventricle Internal End Diastolic Dimension (LN, 29436-3)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Teichholz (DCM, 125209)
Teichholz(2D): LVIDs	Left Ventricle Internal Systolic Dimension (LN, 29438-9)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Teichholz (DCM, 125209)
Teichholz(2D): LVPWd	Left Ventricle Posterior Wall Diastolic Thickness (LN, 18152-9)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Teichholz (DCM, 125209)
Teichholz(2D): LVPWs	Left Ventricle Posterior Wall Systolic Thickness (LN, 18156-0)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Teichholz (DCM, 125209)
Teichholz(2D): SI	Stroke Index (SRT, F-00078)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Teichholz (DCM, 125209)
Teichholz(2D): SV	Stroke Volume (SRT, F-32120)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Teichholz (DCM, 125209)

13.2 Right Ventricle

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
AV/LA(2D): RV diam	Right Ventricular Internal Diastolic Dimension at AV/LA (99SIEMENSUS, CA_RV_DIAM_AV2LA)	Image Mode: 2D mode (SRT, G-03A2)
AV/LA(M): RV diam	Right Ventricular Internal Diastolic Dimension at AV/LA (99SIEMENSUS, CA_RV_DIAM_AV2LA)	Image Mode: M-Mode (SRT, G-0394)
Cubed(2D): RVAWd	Right Ventricle Anterior Wall Diastolic Thickness (LN, 18153-7)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Cube Method (DCM, 125206)
Cubed(2D): RVDd	Right Ventricular Internal Diastolic Dimension (LN, 20304-2)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Cube Method (DCM, 125206)
LV/Cubed(M): RVDd	Right Ventricular Internal Diastolic Dimension (LN, 20304-2)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Cube Method (DCM, 125206)
LV/Teichholz(M): RVDd	Right Ventricular Internal Diastolic Dimension (LN, 20304-2)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Teichholz (DCM, 125209)
Pulmonary Valve: CI	Cardiac Index (SRT, F-32110)	Finding Site: Right Ventricle Outflow Tract (SRT, T-32550) Measurement Method: Doppler Volume Flow (DCM, 125219)
Pulmonary Valve: CO	Cardiac Output (SRT, F-32100)	Finding Site: Right Ventricle Outflow Tract (SRT, T-32550) Measurement Method: Doppler Volume Flow (DCM, 125219)
Pulmonary Valve: RVOT diam	Cardiovascular Orifice Diameter (SRT, G-038F)	Finding Site: Right Ventricle Outflow Tract (SRT, T-32550) Image Mode:2D mode (SRT, G-03A2)

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Pulmonary Valve: SI	Stroke Index (SRT, F-00078)	Finding Site: Right Ventricle Outflow Tract (SRT, T-32550) Measurement Method: Doppler Volume Flow (DCM, 125219)
Pulmonary Valve: SV	Stroke Volume (SRT, F-32120)	Finding Site: Right Ventricle Outflow Tract (SRT, T-32550) Measurement Method: Doppler Volume Flow (DCM, 125219)
RV: RV diam [for 2D and M-Mode]	Right Ventricular Internal Diastolic Dimension (LN, 20304-2)	
Teichholz(2D): RVAWd	Right Ventricle Anterior Wall Diastolic Thickness (LN, 18153-7)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Teichholz (DCM, 125209)
Teichholz(2D): RVDd	Right Ventricular Internal Diastolic Dimension (LN, 20304-2)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Teichholz (DCM, 125209)
TR: RVSP	Right Ventricular Peak Systolic Pressure (SRT, G-0380)	
Tricuspid Valve: RVIMP	Right Ventricular Index of Myocardial Performance (SRT, G-0381)	

13.3 Left Atrium

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
AV/LA(2D): LA diam	Left Atrium Antero-posterior Systolic Dimension (LN, 29469-4)	Image Mode: 2D mode (SRT, G-03A2)
AV/LA(2D): LAd diam	Diameter (SRT, M-02550)	Image Mode: 2D Mode (SRT, G-03A2) Cardiac Cycle Point: Diastole (SRT, F-32010)
AV/LA(2D): LAs/Aod	Left Atrium Diameter (Sys) to Aortic Root Diameter (Dia) Ratio (99SIEMENSUS, CA_LA_LA2AO)	Image Mode: 2D Mode (SRT, G-03A2)
AV/LA(M): LA diam	Left Atrium Antero-posterior Systolic Dimension (LN, 29469-4)	Image Mode: M-Mode (SRT, G-0394)
AV/LA(M): LAd diam	Diameter (SRT, M-02550)	Image Mode: M-Mode (SRT, G-0394) Cardiac Cycle Point: Diastole (SRT, F-32010)
AV/LA(M): LAs/AOd	Left Atrium Diameter (Sys) to Aortic Root Diameter (Dia) Ratio (99SIEMENSUS, CA_LA_LA2AO)	Image Mode: M-Mode (SRT, G-0394)
LA Vol (A-L): A1-A4C	Left Atrium Systolic Area (LN, 17977-0)	Image Mode: 2D Mode (SRT, G-03A2) Image View: Apical four Chamber (SRT, G-A19C) Measurement Package Membership: LA Vol (A-L) Package (99SIEMENSUS, MP2dLAVolAL)
LA Vol (A-L): A2-A2C	Left Atrium Systolic Area (LN, 17977-0)	Image Mode: 2D Mode (SRT, G-03A2) Image View: Apical Two Chamber (SRT, G-A19B) Measurement Package Membership: LA Vol (A-L) Package (99SIEMENSUS, MP2dLAVolAL)

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
LA Vol (A-L): LA Vol(A-L)	Left Atrial ES Volume (DCM, 122408)	Image Mode: 2D Mode (SRT, G-03A2) Measurement Method: Area-Length Biplane (DCM, 125204) Measurement Package Membership: LA Vol (A-L) Package (99SIEMENSUS, MP2dLAVolAL)
LA Vol (A-L): LA Vol(A-L)-1	Left Atrial ES Volume (DCM, 122408)	Image Mode: 2D Mode (SRT, G-03A2) Measurement Method: Area-Length Biplane (DCM, 125204) Index: Body Surface Area (LN, 8277-6) Measurement Package Membership: LA Vol (A-L) Package (99SIEMENSUS, MP2dLAVolAL)
LA Vol (A-L): L	Left Atrium Superior-inferior Systolic Dimension (99SIEMENSUS, DIAM_SUPINF)	Image Mode: 2D Mode (SRT, G-03A2) Measurement Package Membership: LA Vol (A-L) Package (99SIEMENSUS, MP2dLAVolAL)
LA Vol (A-L): L1-A4C	Left Atrium Superior-inferior Systolic Dimension (99SIEMENSUS, DIAM_SUPINF)	Image Mode: 2D Mode (SRT, G-03A2) Image View: Apical Four Chamber (SRT, G-A19C) Measurement Package Membership: LA Vol (A-L) Package (99SIEMENSUS, MP2dLAVolAL)
LA Vol (A-L): L2-A2C	Left Atrium Superior-inferior Systolic Dimension (99SIEMENSUS, DIAM_SUPINF)	Image Mode: 2D Mode (SRT, G-03A2) Image View: Apical Two Chamber (SRT, G-A19B) Measurement Package Membership: LA Vol (A-L) Package (99SIEMENSUS, MP2dLAVolAL)
LA Vol (Ellipsoid): LA Diam ant-post	Left Atrium Antero-posterior Systolic Dimension (LN, 29469-4)	Image Mode: 2D Mode (SRT, G-03A2) Measurement Package Membership: LA Vol (Ellipsoid) Package (99SIEMENSUS, MP2dLAVolEllips)
LA Vol (Ellipsoid): LA Diam med-lat	Left Atrium Medial-lateral Systolic Dimension (99SIEMENSUS, DIAM_MEDLAT)	Image Mode: 2D Mode (SRT, G-03A2) Measurement Package Membership: LA Vol (Ellipsoid) Package (99SIEMENSUS, MP2dLAVolEllips)
LA Vol (Ellipsoid): LA Long-Axis	Left Atrium Superior-inferior Systolic Dimension (99SIEMENSUS, DIAM_SUPINF)	Image Mode: 2D Mode (SRT, G-03A2) Measurement Package Membership: LA Vol (Ellipsoid) Package (99SIEMENSUS, MP2dLAVolEllips)
LA Vol (Ellipsoid): LA Vol (Ellips.)	Left Atrial ES Volume (DCM, 122408)	Image Mode: 2D Mode (SRT, G-03A2) Measurement Method: Biplance Ellipse (DCM, 125211) Measurement Package Membership: LA Vol (Ellipsoid) Package (99SIEMENSUS, MP2dLAVolEllips)
LA Vol (Ellipsoid): LA Vol (Ellips.)-1	Left Atrial ES Volume (DCM, 122408)	Image Mode: 2D Mode (SRT, G-03A2) Measurement Method: Biplane Ellipse (DCM, 125211) Index: Body Surface Area (LN, 8277-6) Measurement Package Membership: LA Vol (Ellipsoid) Package (99SIEMENSUS, MP2dLAVolEllips)

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
LA Vol (Simp BP): ESV2	Left Atrial ES Volume (DCM, 122408)	Image Mode: 2D Mode (SRT, G-03A2) Image View: Apical Two Chamber (SRT, G-A19B) Measurement Method: Method of Disks, Single Plane (DCM, 125208) Measurement Package Membership: LA Vol (Simp BP) Package (99SIEMENSUS, MP2dLAVolSimpBP)
LA Vol (Simp BP): ESV4	Left Atrial ES Volume (DCM, 122408)	Image Mode: 2D Mode (SRT, G-03A2) Image View: Apical Four Chamber (SRT, G-A19C) Measurement Method: Method of Disks, Single Plane (DCM, 125208) Measurement Package Membership: LA Vol (Simp BP) Package (99SIEMENSUS, MP2dLAVolSimpBP)
LA Vol (Simp BP): LA Vol (Simp BP)	Left Atrial ES Volume (DCM, 122408)	Image Mode: 2D Mode (SRT, G-03A2) Measurements Method: Method of Disks, Biplane (DCM, 125207) Measurement Package Membership: LA Vol (Simp BP) Package (99SIEMENSUS, MP2dLAVolSimpBP)
LA Vol (Simp BP): LV Vol (Simp BP)-1	Left Atrial ES Volume (DCM, 122408)	Image Mode: 2D Mode (SRT, G-03A2) Measurement Method: Method of Disks, Biplane (DCM, 125207) Index: Body Surface Area (LN, 8277-6) Measurement Package Membership: LA Vol (Ellipsoid) Package (99SIEMENSUS, MP2dLAVolSimpBP)

13.4 Right Atrium

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
PR: RAP TR: RAP or not shown on report	Right Atrium Systolic Pressure (LN, 18070-3)	
RA Vol (A-L SP): A-A4C	Right Atrium Systolic Area (LN, 17988-7)	Image Mode: 2D Mode (SRT, G-03A2) Image View: Apical Four Chamber (SRT, G-A19C) Measurement Package Membership: RA Vol (A-L SP) Package (99SIEMENSUS, MP2dRAVolALSP)
RA Vol (A-L SP): L-A4C	Right Atrium Systolic Long Axis (99SIEMENSUS, CA_RA_DIA)	Image Mode: 2D Mode (SRT, G-03A2) Image View: Apical Four Chamber (SRT, G-A19C) Measurement Package Membership: RA Vol (A-L SP) Package (99SIEMENSUS, MP2dRAVolALSP)

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
RA Vol (A-L SP): RA Vol (A-L SP)	Right Atrium Systolic Volume (99SIEMENSUS, CA_RA_VOL)	Image Mode: 2D Mode (SRT, G-03A2) Image View: Apical Four Chamber (SRT, G-A19C) Measurement Method: Area-Length Single Plane (DCM, 125205) Measurement Package Membership: RA Vol (A-L SP) Package (99SIEMENSUS, MP2dRAVolALSP)
RA Vol (A-L SP): RA Vol (A-L SP)-1	Right Atrium Systolic Volume (99SIEMENSUS, CA_RA_VOL)	Image Mode: 2D Mode (SRT, G-03A2) Image View: Apical Four Chamber (SRT, G-A19C) Measurement Method: Area-Length Single Plane (DCM, 125205) Index: Boday Surface Area (LN, 8277-6) Measurement Package Membership: RA Vol (A-L SP) Package (99SIEMENSUS, MP2dRAVolALSP)
RA Vol (Simp SP): RA Vol (SimpSP)	Right Atrium Systolic Volume (99SIEMENSUS, CA_RA_VOL)	Image Mode: 2D Mode (SRT, G-03A2) Image View: Apical Four Chamber (SRT, G-A19C) Measurement Method: Method of Disks, Single Plane (DCM, 125208) Measurement Package Membership: RA Vol (Simp SP) Package (99SIEMENSUS, MP2dRAVolSimpSP)
RA Vol (Simp SP): RA Vol (SimpSP)-1	Right Atrium Systolic Volume (99SIEMENSUS, CA_RA_VOL)	Image Mode: 2D Mode (SRT, G-03A2) Image View: Apical Four Chamber (SRT, G-A19C) Measurement Method: Method of Disks, Single Plane (DCM, 125208) Index: Body Surface Area (LN, 8277-6) Measurement Package Membership: RA Vol (Simp SP) Package (99SIEMENSUS, MP2dRAVolSimpSP)

13.5 Aortic Valve

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Aortic Valve: AV PGmax	Peak Gradient (LN, 20247-3)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Aortic Valve: AV PGmean	Mean Gradient (LN, 20256-4)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Aortic Valve: AV Vmax	Peak Systolic Velocity (LN, 11726-7)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Aortic Valve: AV Vmean	Mean Velocity (LN, 20352-1)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Aortic Valve: AV VTI	Velocity Time Integral (LN, 20354-7)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Aortic Valve: AVA(Trace)	Cardiovascular Orifice Area (SRT, G-038E)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Planimetry (DCM, 125220)
Aortic Valve: AVA(Vmax)	Cardiovascular Orifice Area (SRT, G-038E)	Direction of Flow: Antegrade Flow (SRT, R-42047) Measurement Method: Continuity Equation by Peak Velocity (DCM, 125214);

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Aortic Valve: AVA(VTI)	Cardiovascular Orifice Area (SRT, G-038E)	Direction of Flow: Antegrade Flow (SRT, R-42047) Measurement Method: Continuity Equation by Velocity Time Integral (DCM, 125215)
Aortic Valve: HR	Heart Rate (LN, 8867-4)	Finding Site: Aortic Valve (SRT, T-35400)
Aortic Valve: LVET	Aortic Valve Ejection Time (LN, 18041-4)	Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER)
Aortic Valve: LVPEP	Pre-Ejection Period (LN, 18068-7)	
Aortic Valve: LVSTI	Aortic Valve Pre-ejection Period to Ejection Time (99SIEMENSUS, CA-AV_PEP2ET)	Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER)
AR: AI Dec Slope	Deceleration Slope (LN, 20216-8)	Direction of Flow: Regurgitant Flow (SRT, R-42E61) Measurement Method: Area by Pressure Half-Time (DCM, 125210)
AR: AI Dec Time	Deceleration Time (LN, 20217-6)	Direction of Flow: Regurgitant Flow (SRT, R-42E61) Measurement Method: Area by Pressure Half-Time (DCM, 125210)
AR: AI PGmax	Peak Gradient (LN, 20247-3)	Direction of Flow: Regurgitant Flow (SRT, R-42E61) Measurement Method: Area by Pressure Half-Time (DCM, 125210)
AR: AI PHT	Pressure Half-Time (LN, 20280-4)	Direction of Flow: Regurgitant Flow (SRT, R-42E61) Measurement Method: Area by Pressure Half-Time (DCM, 125210)
AR: AI Vmax	Maximum Velocity (LN, 20351-3)	Direction of Flow: Regurgitant Flow (SRT, R-42E61) Measurement Method: Area by Pressure Half-Time (DCM, 125210)
AR: AR PGmax	Peak Gradient (LN, 20247-3)	Direction of Flow: Regurgitant Flow (SRT, R-42E61)
AR: AR Time	Aortic Valve Regurgitant Diastolic Deceleration Time (LN, 17998-6)	
AR: AR V ed	End Diastolic Velocity (LN, 11653-3)	Direction of Flow: Regurgitant Flow (SRT, R-42E61)
AR: AR Vmax	Maximum Velocity (LN, 20351-3)	Direction of Flow: Regurgitant Flow (SRT, R-42E61)
AR: Decel Rate	Deceleration Slope (LN, 20216-8)	Direction of Flow: Regurgitant Flow (SRT, R-42E61)
AV/LA(2D): ACS	Aortic Valve Cusp Separation (LN, 17996-0)	Image Mode: 2D mode (SRT, G-03A2)
AV/LA(2D): AO/LA	Aortic Root Diameter to Left Atrium Diameter Ratio (99SIEMENSUS, CA_LA_AO2LA)	Image Mode: 2D mode (SRT, G-03A2)
AV/LA(M): ACS	Aortic Valve Cusp Separation (LN, 17996-0)	Image Mode: M-Mode (SRT, G-0394)
AV/LA(M): AO/LA	Aortic Root Diameter to Left Atrium Diameter Ratio (99SIEMENSUS, CA_LA_AO2LA)	Image Mode: M-Mode (SRT, G-0394)
AV/LA(2D): LVET AV/LA(M): LVET	Aortic Valve Ejection Time (LN, 18041-4)	Image Mode: M-Mode (SRT, G-0394)
AV/LA(2D): LVPEP AV/LA(M): LVPEP	Pre-Ejection Period (LN, 18068-7)	Image Mode: M-Mode (SRT, G-0394)

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
AV/LA(2D): LVSTI AV/LA(M): LVSTI	Aortic Valve Pre-ejection Period to Ejection Time (99SIEMENSUS, CA_AV_PEP2ET)	Image Mode: M-Mode (SRT, G-0394)
LV/Teichholz(M): LVET	Aortic Valve Ejection Time (LN, 18041-4)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Teichholz (DCM, 125209)
LV/Cubed(M): LVET	Aortic Valve Ejection Time (LN, 18041-4)	Image Mode: M-Mode (SRT, G-0394) Measurement Method: Cube Method (DCM, 125206)

13.6 Mitral Valve

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Mitral Valve: A/E	Mitral Valve A to E Ratio (99SIEMENSUS, CA_MV_A2E)	
Mitral Valve: A duration	Mitral Valve A-Wave Duration (SRT, G-0385)	
Mitral Valve: CA/CE	Mitral Valve A to E Ratio (99SIEMENSUS, CA_MV_A2E)	Image Mode: M-Mode (SRT, G-0394)
Mitral Valve: CA amp	Amplitude A Wave Mmode (99SIEMENSUS, CA_MV_AwaveAmpl)	Image Mode: M-Mode (SRT, G-0394)
Mitral Valve: CE amp	Amplitude E Wave Mmode (99SIEMENSUS, CA_MV_EwaveAmpl)	Image Mode: M-Mode (SRT, G-0394)
Mitral Valve: CI	Cardiac Index (SRT, F-32110)	Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER) Measurement Method: Doppler Volume Flow (DCM, 125219)
Mitral Valve: DE amp	Amplitude D-E Wave Mmode (99SIEMENSUS, CA_MV_DEWaveAmpl)	Image Mode: M-Mode (SRT, G-0394)
Mitral Valve: DE slope	Mitral Valve D-E Slope by M-Mode (99SIEMENSUS, CA_MV_DE_SLOPE)	Image Mode: M-Mode (SRT, G-0394)
Mitral Valve: Dec Slope	Deceleration Slope (LN, 20216-8)	Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER)
Mitral Valve: Dec Time	Mitral Valve E-Wave Deceleration Time (SRT, G-0384)	
Mitral Valve: E/A	Mitral Valve E to A Ratio (LN, 18038-0)	Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER)
Mitral Valve: E duration	Mitral Valve E-Wave Duration (99SIEMENSUS, CA_MV_DURe)	
Mitral Valve: EF slope	Mitral Valve E-F Slope by M-Mode (LN, 18040-6)	Image Mode: M-Mode (SRT, G-0394)
Mitral Valve: EPSS	Mitral Valve EPSS, E wave (LN, 18036-4)	Image Mode: 2D mode (SRT, G-03A2)
Mitral Valve: EPSS	Mitral Valve EPSS, E wave (LN, 18036-4)	Image Mode: M-Mode (SRT, G-0394)
Mitral Valve: HR	Heart Rate (LN, 8867-4)	
Mitral Valve: MV A pt	Mitral Valve A-Wave Peak Velocity (LN, 17978-8)	
Mitral Valve: MV C-Odur	Mitral Valve Closure to Opening Time (SRT, G-0387)	

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Mitral Valve: MV diam	Cardiovascular Orifice Diameter (SRT, G-038F)	
Mitral Valve: MV E pt	Mitral Valve E-Wave Peak Velocity (LN, 18037-2)	
Mitral Valve: MV LVET	Aortic Valve Ejection Time (LN, 18041-4)	Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER)
Mitral Valve: MV PGmax	Mitral Valve Diastolic Peak Instantaneous Gradient (LN, 18057-0)	
Mitral Valve: MV PGmean	Mean Gradient (LN, 20256-4)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Mitral Valve: MV PHT	Pressure Half-Time (LN, 20280-4)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Mitral Valve: MV Vmax	Maximum Velocity (LN, 20351-3)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Mitral Valve: MV Vmean	Mean Velocity (LN, 20352-1)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Mitral Valve: MV VTI	Velocity Time Integral (LN, 20354-7)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Mitral Valve: MVA(PHT)	Cardiovascular Orifice Area (SRT, G-038E)	Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER) Direction of Flow: Antegrade Flow (SRT, R-42047) Measurement Method: Area by Pressure Half-Time (DCM, 125210)
Mitral Valve: MVA(Trace)	Cardiovascular Orifice Area (SRT, G-038E)	Image Mode: 2D mode (SRT, G-03A2) Measurement Method: Planimetry (DCM, 125220);
Mitral Valve: MVA(VTI)	Cardiovascular Orifice Area (SRT, G-038E)	Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER) Direction of Flow: Antegrade Flow (SRT, R-42047) Measurement Method: Continuity Equation (DCM, 125212)
Mitral Valve: SI	Stroke Index (SRT, F-00078)	Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER)
MR: dP/dt	Mitral Regurgitation dP/dt derived from Mitral Regurgitation Velocity (LN, 18035-6)	
MR: dt	Deceleration Time (LN, 20217-6)	Direction of Flow: Regurgitant Flow (SRT, R-42E61)
MR: MR PGmax	Peak Gradient (LN, 20247-3)	Direction of Flow: Regurgitant Flow (SRT, R-42E61)
MR: MR Vmax	Peak Systolic Velocity (LN, 11726-7)	Direction of Flow: Regurgitant Flow (SRT, R-42E61)
PISA(MR): Aliasing Vel	Mean Velocity (LN, 20252-1)	Direction of Flow: Regurgitant Flow (SRT, R-42E61) Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216) Derivation: Estimated (DCM, 121427)
PISA(MR): EO Area	Cardiovascular Orifice Area (SRT, G-038E)	Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER) Direction of Flow: Regurgitant Flow (SRT, R-42E61) Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216)
PISA(MR): Flow Rate	Peak Instantaneous Flow Rate (LN, 34141-2)	Direction of Flow: Regurgitant Flow (SRT, R-42E61) Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216)
PISA(MR): Flow Vol	Volume Flow (LN, 33878-0)	Direction of Flow: Regurgitant Flow (SRT, R-42E61) Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216)

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
PISA(MR): MR Vmax	Peak Systolic Velocity (LN, 11726-7)	Direction of Flow: Regurgitant Flow (SRT, R-42E61) Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216)
PISA(MR): MR VTI	Velocity Time Integral (LN, 20354-7)	Direction of Flow: Regurgitant Flow (SRT, R-42E61) Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216)
PISA(MR): Radius	Dome Radius (99SIEMENSUS, CA_DOME)	Direction of Flow: Regurgitant Flow (SRT, R-42E61) Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216)
PISA(MS): Aliasing Vel	Mean Velocity (LN, 20252-1)	Direction of Flow: Antegrade Flow (SRT, R-42047) Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216) Derivation: Estimated (DCM, 121427)
PISA(MS): Angle	Angle measured at Mitral Valve Stenosis (99SIEMENSUS, CA_MS_Angle)	Direction of Flow: Antegrade Flow (SRT, R-42047) Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216)
PISA(MS): Flow Rate	Peak Instantaneous Flow Rate (LN, 34141-2)	Direction of Flow: Antegrade Flow (SRT, R-42047) Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216)
PISA(MS): Flow Vol	Volume Flow (LN, 33878-0)	Direction of Flow: Antegrade Flow (SRT, R-42047) Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216)
PISA(MS): MS PGmax	Peak Gradient (LN, 20247-3)	Direction of Flow: Antegrade Flow (SRT, R-42047) Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216)
PISA(MS): MS Vmax	Maximum Velocity (LN, 20351-3)	Direction of Flow: Antegrade Flow (SRT, R-42047) Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216)
PISA(MS): MS VTI	Velocity Time Integral (LN, 20354-7)	Direction of Flow: Antegrade Flow (SRT, R-42047) Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216)
PISA(MS): MS MVA	Cardiovascular Orifice Area (SRT, G-038E)	Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER) Direction of Flow: Antegrade Flow (SRT, R-42047) Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216)
PISA(MS): Radius	Dome Radius (99SIEMENSUS, CA_DOME)	Direction of Flow: Antegrade Flow (SRT, R-42047) Measurement Method: Proximal Isovelocity Surface Area (DCM, 125216)

13.7 Pulmonic Valve

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
PR: PR PGmax	Peak Gradient (LN, 20247-3)	Direction of Flow: Regurgitant Flow (SRT, R-42E61)
PR: PR PGmean	Mean Gradient (LN, 20256-4)	Direction of Flow: Regurgitant Flow (SRT, R-42E61)
PR: PR Ved	End Diastolic Velocity (LN, 11653-3)	Direction of Flow: Regurgitant Flow (SRT, R-42E61)
PR: PR Vmax	Maximum Velocity (LN, 20351-3)	Direction of Flow: Regurgitant Flow (SRT, R-42E61)
PR: PR Vmean	Mean Velocity (LN, 20352-1)	Direction of Flow: Regurgitant Flow (SRT, R-42E61)
PR: PR VTI	Velocity Time Integral (LN, 20354-7)	Direction of Flow: Regurgitant Flow (SRT, R-42E61)
Pulmonary Valve: HR	Heart Rate (LN, 8867-4)	
Pulmonary Valve: PV PGmax	Peak Gradient (LN, 20247-3)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Pulmonary Valve: PV PGmean	Mean Gradient (LN, 20256-4)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Pulmonary Valve: PV Vmax	Peak Systolic Velocity (LN, 11726-7)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Pulmonary Valve: PV Vmean	Mean Velocity (LN, 20352-1)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Pulmonary Valve: RV Acc T/ET	Ratio of Pulmonic Valve Acceleration Time to Ejection Time (SRT, G-0388)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Pulmonary Valve: RV Acc Time	Acceleration Time (LN, 20168-1)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Pulmonary Valve: RVET Tricuspid Valve: RVET	Pulmonic Valve Ejection Time (LN, 18042-2)	
Pulmonary Valve: RVOT VTI	Velocity Time Integral (LN, 20354-7)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Pulmonary Valve: RVPEP	Right Ventricle Pre-Ejection Period (LN, 20301-8)	Image Mode: M-Mode (SRT, G-0394)
Pulmonary Valve: RVSTI	Pulmonic Valve Pre-ejection Period to Ejection Time (99SIEMENSUS, CA_PV_PEP2ET)	Image Mode: Doppler Mode (99SIEMENSUS, DOPPLER)

13.8 Tricuspid Valve

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
TR: TR PGmax	Peak Gradient (LN, 20247-3)	Direction of Flow: Regurgitant Flow (SRT, R-42E61)
TR: TR PGmean	Mean Gradient (LN, 20256-4)	Direction of Flow: Regurgitant Flow (SRT, R-42E61)
TR: TR Vmax	Peak Systolic Velocity (LN, 11726-7)	Direction of Flow: Regurgitant Flow (SRT, R-42E61)
TR: TR Vmean	Mean Velocity (LN, 20352-1)	Direction of Flow: Regurgitant Flow (SRT, R-42E61)
TR: TR VTI	Velocity Time Integral (LN, 20354-7)	Direction of Flow: Regurgitant Flow (SRT, R-42E61)
Tricuspid Valve: E/A	Tricuspid Valve E to A Ratio (LN, 18039-8)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Tricuspid Valve: TV A pt	Tricuspid Valve A Wave Peak Velocity (LN, 18030-7)	Direction of Flow: Antegrade Flow (SRT, R-42047)

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Tricuspid Valve: TV C-Odur	Tricuspid Valve Closure to Opening Time (SRT, G-0389)	
Tricuspid Valve: TV E pt	Tricuspid Valve E Wave Peak Velocity (LN, 18031-5)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Tricuspid Valve: TV PGmax	Peak Gradient (LN, 20247-3)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Tricuspid Valve: TV PGmean	Mean Gradient (LN, 20256-4)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Tricuspid Valve: TV Vmax	Maximum Velocity (LN, 20351-3)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Tricuspid Valve: TV Vmean	Mean Velocity (LN, 20352-1)	Direction of Flow: Antegrade Flow (SRT, R-42047)
Tricuspid Valve: TV VTI	Velocity Time Integral (LN, 20354-7)	Direction of Flow: Antegrade Flow (SRT, R-42047)

13.9 Aorta

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
AV/LA(2D): AO	Aortic Root Diameter (LN, 18015-8)	Image Mode: 2D mode (SRT, G-03A2) Cardiac Cycle Point: Systole (SRT, F-32020)
AV/LA(2D): AOd diam	Aortic Root Diameter (LN, 18015-8)	Image Mode: 2D Mode (SRT, G-03A2) Cardiac Cycle Point: Diastole (SRT, F-32010)
AV/LA(M): AO	Aortic Root Diameter (LN, 18015-8)	Image Mode: M-Mode (SRT, G-0394) Cardiac Cycle Point: Systole (SRT, F-32020)
AV/LA(M): AOd diam	Aortic Root Diameter (LN, 18015-8)	Image Mode: M-Mode (SRT, G-0394) Cardiac Cycle Point: Diastole (SRT, F-32010)

13.10 Pulmonary Artery

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
PR: PAEDP	Pulmonary Artery Pressure (SRT, F-0212C)	Cardiac Cycle Point: End Diastole (SRT, F-32011)
Pulmonary Valve: PA Acc Time	Acceleration Time (LN, 20168-1)	Direction of Flow: Antegrade Flow (SRT, R-42047)

13.11 Pulmonary Venous Structure

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Pulmonary Vein: PVa Dur	Pulmonary Vein A-Wave Duration (SRT, G-038B)	

Label (Heading: Measurement)	Code Meaning (Coding Scheme Designator, Code Value)	Modifiers
Pulmonary Vein: PVa Vel	Pulmonary Vein Atrial Contraction Reversal Peak Velocity (LN, 29453-8)	Cardiac Cycle Point: Diastole (SRT, F-32010)
Pulmonary Vein: PVd Decel T	Deceleration Time (LN, 20217-6)	Cardiac Cycle Point: Diastole (SRT, F-32010)
Pulmonary Vein: PVd Vel	Pulmonary Vein Diastolic Peak Velocity (LN, 29451-2)	Cardiac Cycle Point: Diastole (SRT, F-32010)
Pulmonary Vein: PVd VTI	Pulmonary Vein D-Wave Velocity Time Integral (SRT, G-038D)	
Pulmonary Vein: PVs VTI	Pulmonary Vein S-Wave Velocity Time Integral (SRT, G-038C)	
Pulmonary Vein: PVs1 Vel	Pulmonary Vein Systolic Peak Velocity (LN, 29450-4)	Topographical Modifier: Peak1 (99SIEME, Peak1)
Pulmonary Vein: PVs2/PVd	Pulmonary Vein Systolic to Diastolic Ratio (LN, 29452-0)	
Pulmonary Vein: PVs2 Vel	Pulmonary Vein Systolic Peak Velocity (LN, 29450-4)	Topographical Modifier: Peak2 (99SIEME, Peak2)
Pulmonary Vein: Sys Fraction	Pulmonary Vein Systolic Fraction (99SIEMENSUS, CA_PVE_SF)	